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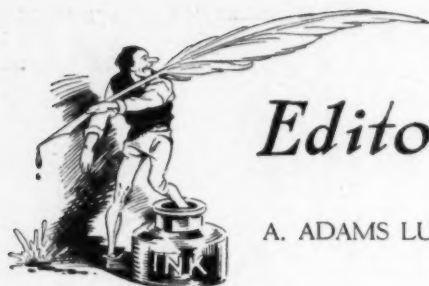
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## Editorial

A. ADAMS LUND, Editor

### Marshmallow — An American Confection

**T**WO of the leading features of this issue have to do with the queen of all confections—the marshmallow. Most difficult to make, most fascinating to study and most subtly alluring of all textures—the marshmallow stands apart as the ultimate in candy craftsmanship. One of the few confections to achieve consumer acceptance as an every day article of diet, the marshmallow points the way to a wider range of usefulness for all candies.

From the first humble beginnings of the crude fluff produced by our forefathers with the aid of the mucilaginous substance contained in the wild mallow of our marsh lands, the marshmallow has been a singularly American confection. Here, as nowhere else, its popularity has made it possible for large concerns to specialize in its manufacture. Campfire—Angelus—names that have become household by-words—what other confection enjoys so strong a hold upon the consumer's imagination?

### What About the Candy Institute?

**A**T THE West Baden Convention last year a sum of money was appropriated to map out a plan of research for the confectionery industry. Many have been the rumblings of this assignment in its efforts to get under way. From a trade quarter comes word of a central consulting laboratory and experiment station for the candy and allied industries—obviously an attempt on the part of aggressive elements in the supply trade to fill the growing need for a service of this kind.

But from headquarters, where this sort of enterprise is so earnestly looked for, no word of an official sort has been uttered. The trade papers—with trained technical staffs and an avowed willingness to help—have not (to the best of our knowledge) been called upon for aid. Which is a pity, because the two major publications in the field are probably in a better position to offer trained assistance than the scatter-

ing of individuals who must perforce color their recommendations to suit their respective connections.

But perhaps we are hasty and should not prejudge in advance of the next convention. Possibly the details of a plan have been worked out and are being held ready to spring at a more psychological moment. At any rate, it is to be sincerely hoped that whatever plan of action is decided upon will be a worth-while effort; that it will be a credit to the candy industry and not a one-man arrangement in which the name alone is preserved and the major issues of departmentalized research and general personnel education ignored.

Those of our readers who are interested in knowing what other trade associations have done along these same lines will find the subject ably reported upon in the series, "Let's Build a *Real* Candy Institute," running currently in this issue.

## When Preparedness Pays

HERE are loud hosannas and rejoicing in the camp of the candy manufacturers over the stipulation recently entered into by the American Tobacco Company with the Federal Trade Commission whereby this corporation has agreed to "cease and desist forever" from the unfair methods of competition which it has employed in the sale of its cigarettes. According to this stipulation, references to slimmness resulting from the use of cigarettes are to be avoided hereafter. "Tainted" testimonials shall bear the imprint of Mammon. So far, so good.

But a public mind indelibly impressed by a gigantic advertising campaign cannot

help but complete the mental picture presented by the beatified slogan, "Reach for a Lucky *Instead*." Instead of what? The shadows campaign clearly depicts the results of overweight in the double chin. And thus the letter of the stipulation is skillfully evaded.

So let the work of the Protective Committee go on. Let them lay a foundation for defense which will deter others from following the example of the tobacco company. Let them publish counter publicity which will clear the air of all this quibbling. Credit is theirs for a technical victory, but the real end of the battle is not yet.

## Back at the Stevens Hotel

THE stage is being set for the annual Convention at the Stevens Hotel in Chicago, June 2nd to 6th, inclusive. Because of the more central location chosen for this year's activities, it may be reasonably expected that the Exposition will attract a representative gathering of exhibitors from the supply field.

Sitting at a desk ordering supplies reminds us of the distinction between "buying" and "being sold." At an exposition the suppliers lay down their cards face up. The buyer *buys* instead of being sold. He examines the rank and file of competition

—at his leisure—compares one product with another under circumstances that are most favorable to him.

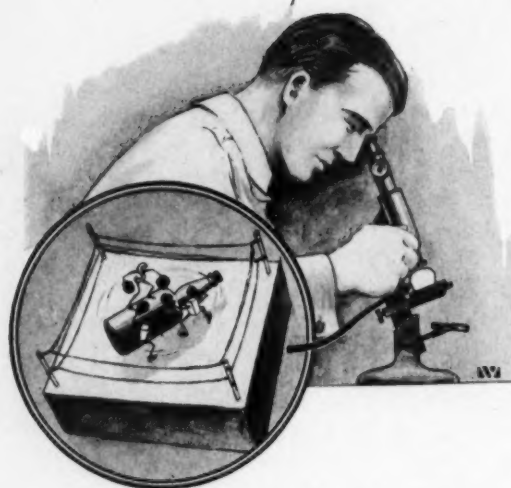
It is not expected that he lay down signed orders in return, for there seems to be an unwritten law among exhibitors to "soft pedal" the sales talks and carry home the goodwill and friendship of their buyers instead. And anyone who can come away from one of these expositions without a hatful of new ideas to offset the expenses of the trip certainly must be "asleep at the switch."

## Clinic Work Appreciated

THE Candy Clinic service which the MANUFACTURING CONFECTIONER established twenty-seven months ago has climbed to the dignity and importance of a national candy institution. In this section have appeared the criticisms of packages and products put out by confectionery manufacturers, large and small. In practically every instance these criticisms have been accepted in good faith, usually eliciting the response that the necessary changes have been made to conform to our recommendations and the request that the

improved package be subjected to the same analysis.

Which is one of the reasons why we have no patience with the calamity howlers who are forever seeing the downfall of the industry. When you criticize their products in an intelligent and constructive fashion and every man jack of them gets busy and does something about it—well, perhaps there's not as much wrong with the industry as one would be led to suspect. Let's put on our rose-colored glasses for a change!



# Peering into a Marshmallow

BY FRANK R. JOHNSON  
(of Gelatine Laboratories)

**A** DISCUSSION of the numerous inter-dependent changes which take place in a marshmallow after it has been cast in starch would fill a good-sized book. To ascertain the causes of these various changes would require poking one's mental nose into the practical and theoretical considerations governing the manufacture of marshmallow, for a number of years.

We are continually adding to the sum total of marshmallow information, new concepts—new explanations of the various processes which go on in the finished goods. Progress is hampered somewhat because, with the limitations of present-day facilities, it is impossible to so control all the conditions of manufacture and storage that only one factor can be varied at a time. Another and more obvious difficulty lies in our inability to visualize the conditions which exist or the changes which take place *inside* of the product. It would be most interesting to be able to peer into a marshmallow with the enthusiasm of Metchnikoff while watching his phagocytes do battle inside of a jelly fish or water flea.

The excuse for this article's being written is the writer's firm belief that a majority of the difficulties encountered in marshmallow manufacture can be constructively attributed to the improper drying or conditioning of the casting starch. As will be pointed out later, the conditioning or partial drying of marshmallow is directly tied to the shelf life of the goods, admittedly a factor of para-

mount importance to the manufacturer as well as to the jobber and ultimate consumer.

Immediately upon being cast, abstraction of moisture begins to take place—from the sides and bottom of the marshmallow by the starch, and from its top by the air. This is followed by the movement of moisture from the center of the marshmallow toward the outside. The rate of drying decreases from a maximum at

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*Have you ever pictured a drying marshmallow as a battleground—where wars are waged between the various elements of the batch and between batch and starch, for possession of precious grains of a steadily diminishing moisture content? Mr. Johnson's vivid imagery of what goes on behind the scenes during the setting and seasoning of this most difficult of all confections will be a joy to the chemist and a thrill to the layman.*

---

the time of casting until an equilibrium between the moisture content of starch and marshmallow has been reached. After about six hours in starch (depending upon local conditions) most of the moisture to be removed will have been removed. The drying curve is said to have become "Asymptotic to the moisture co-ordinate." In due time the syrup which comprises the outer layers of the marshmallow becomes highly supersaturated with respect to sugar and then crystallization or graining

results in the formation of the fine envelope which is referred to as the "skin" of the marshmallow.

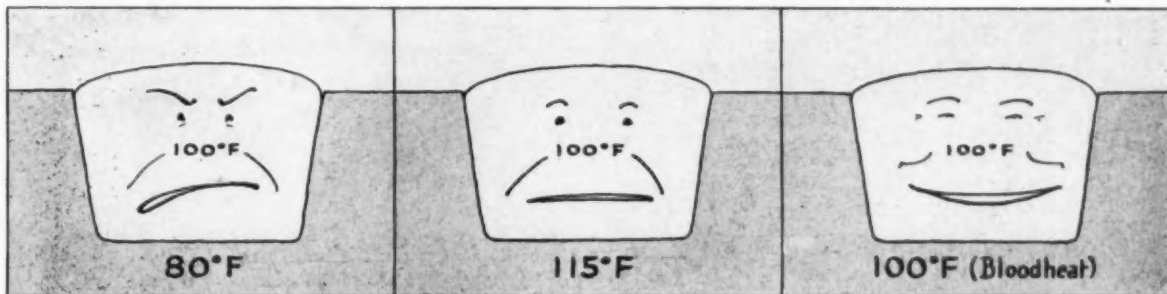
It is evident that the drying process progresses from the outside of the marshmallow toward the inside—consequently, the skin or crust builds up in the same direction. This skin proper contains very little moisture, if any. As further sugar crystals form inside the skin, they become enveloped in a syrup which contains non-crystallizable substances, principally gelatine and the dextrin of the corn syrup. Substances such as these are known as "crystal inhibitors." They exert a powerful influence toward preventing the formation of crystals and cause an abortive growth of those crystals which do form. It is evidently due to the presence of these substances that it is possible to have a marshmallow which is highly supersaturated (consequently, non-fermentable) and at the same time resilient.

Upon cooling, the gelatine in this syrup passes from the "sol" phase to the "gel" phase, setting up a livery jelly which becomes progressively more plastic. This gives the marshmallow resistance to deformation and also tends in some measure to prevent the growth of a characteristic structure known as "dendroid" structure which will be described later. Loss of moisture by the marshmallow, of course, hastens the formation of the jelly.

Here, again, it would be interesting to speculate upon the relative merits of two marshmallows—one in which the temperature of gelation of the gelatine is never reached (in



# Effect of Starch Temperatures on Drying Marshmallows—



## 1 STARCH NOT HOT ENOUGH

Temperature inside of marshmallow drops slowly, favoring growth of comparatively large crystals, which makes abstraction of moisture from within difficult. Has misleading body and texture; "comes back" slowly; sweats badly when packed.

## 2 STARCH TOO HOT

Rapid drying results in multiplicity of small crystals. The speed with which these redissolve facilitates redistribution of moisture. Ordinary drying time must be reduced or too much moisture will be abstracted.

## 3 STARCH JUST RIGHT

The proper starch temperature for best results is blood heat (about 98°–100°F). Starch temperatures should be checked carefully prior to casting if you want good marshmallows.

consequence of which the gelatine would remain in the sol form), and a second in which the temperature of drying permits gelation (in which case the gelatine would be in the gel form). In other words, are the properties of gelatine in the gel form sufficiently different from its properties in the sol form to cause any marked difference in characteristics of the finished marshmallow?

From the formula which follows it is obvious that the total amount of water in the batch at the time of casting will be approximately 31%. When removed from the starch, the outer skin of this marshmallow will contain little, if any, moisture, and as we approach the center the amount of moisture will increase to a maximum of possibly 28% to 30%, the average of the entire marshmallow being in the neighborhood of, say 18%.

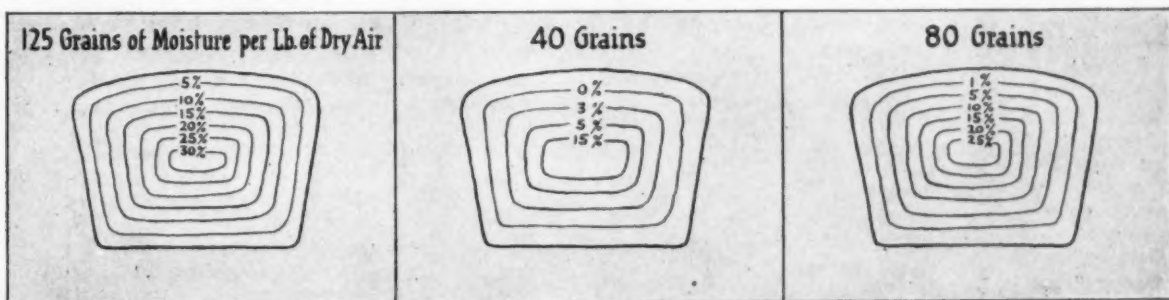
	Pounds	Per Cent	Pounds Solids	Pounds Water	Per Cent Dry Basis
Sugar .....	60	38.0	60.0	...	38.0
Corn Syrup 43° Be. ....	50	31.6	41.3	8.7	26.1
Invert Sugar (in this case "Nulomoline") .....	5	3.2	4.0	1.0	2.5
Gelatine .....	3	1.9	2.7	.3	1.7
Water .....	40	25.3	...	40.0	31.7
	158	100.0	108.0	50.0	100.0

This 31% of water, which is contained in the marshmallow drop as cast, might conceivably be disposed as follows: 16 pounds to dissolve the sugar (38 pounds), 7 pounds contained in the corn syrup (26.1 pounds dry weight), and 8 pounds to be taken up by the gelatine (1.7 pounds dry weight). To be sure, such a theoretical distribution of moisture would be difficult to prove or disprove, in view of the insolubility of sugar, gelatine and corn syrup. Nevertheless, the illustration emphasizes the importance and complicated nature of the rearrange-

ment subsequently brought about by the removal of moisture from the marshmallow while it is in starch. Assuming that the finished marshmallow will contain only 18% moisture, try to distribute this among the various ingredients and you will get a fair picture of the tremendous struggle which takes place between these moisture-thirsty materials for the comparatively small amount of moisture which remains.

Since one seldom sees a microscopic or visible-to-the-naked-eye crystal in marshmallow, it is necessary to look into the mechanism of

# Influence of Relative Humidity on the Seasoning of Marshmallows—



## 1 SOGGY

Condition resulting from excess of moisture in air in which marshmallow is allowed to season.

## 2 TOO DRY

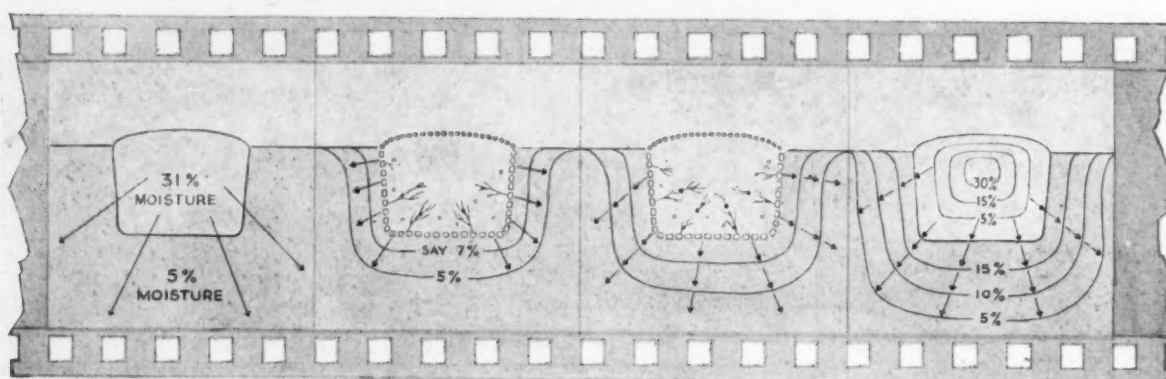
Insufficient moisture in surrounding air has brought about marked change in crystal structure. This marshmallow is much too dry.

## 3 JUST RIGHT

Average humidity indicated as condition best suited to retention of proper texture during seasoning. Note distribution of moisture as shown by "hydrotherms".

## PEERING INTO A MARSHMALLOW

### MOVIE showing the inside of a marshmallow after casting:



#### 1 AS CAST

Marshmallow mass a saturated solution. Redistribution of moisture begins, establishing moisture gradient. Length of arrow indicates extent of capillary "pull".

#### 2 AFTER 1 HR.

Syrup nearest starch becomes supersaturated as result of moisture abstraction. Skin forms by crystallization. Formation of dendrite structures hastens removal of moisture by capillarity.

#### 3 SAME

Dendrites rearranging to form crystals. Crystals in turn become starting points of new dendrites which progress toward center as moisture is removed.

#### 4 AFTER 4 HRS.

Moisture lines, or "hydrotherms", show probable distribution of moisture in marshmallow and starch four hours after casting.

marshmallow crystal formation microscopically. When marshmallow is cast, it is practically a saturated solution, that is, it contains just about enough water to hold its ingredients in solution. As the starch takes up moisture from the marshmallow there develops an area adjacent to the starch which becomes supersaturated with respect to sugar. A crystal starts to form. Its dimensions increase—from molecular, so tiny as to be invisible to the most powerful microscope, to ultra-microscopic, finally to a point where it becomes visible to the ordinary microscope. Soon the surface film of the marshmallow contains a number of these microscopic sugar crystals, each of which becomes the nucleus of a formation known as a "dendrite" (crystallization in a form resembling the branching of a tree). With the continued removal of moisture from within, this dendrite or branching crystal arrangement asserts itself in all directions—especially toward the center of the marshmallow. The minute crystals which constitute the dendroid are in a highly unstable condition and are constantly being forced, by rearrangement to "snap back" into monoclinic crystals of sugar, which in turn become the nuclei for successive dendroids. Seldom do these larger crystals become microscopic, excessive growth being prevented by the crystal inhibitors, gelatine, dextrin, etc.

To focus one's imagination on the

inception of one of these dendrite formations, watch it grow into a crystal, to see its "leaders" wind their way into the plastic body of the marshmallow, and to follow the exhaustion of water from the center of the marshmallow to the starch is most fascinating. And what could be more spectacular than to visualize the competition between gelatine, corn syrup, sugar syrup and other hygroscopic substances for the water that remains in the marshmallow?

After a few hours in starch, the marshmallow has lost sufficient moisture to cause the formation of a delicate surface membrane measuring but a few crystals in thickness. It should be borne in mind that the character of this membrane may cause considerable trouble in subsequent operations, and mean shortened or possibly no shelf life.

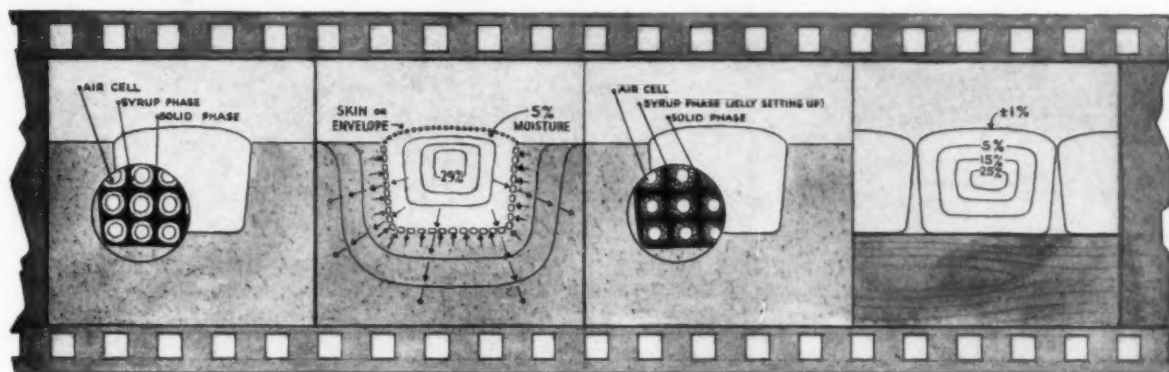
Three common laws govern crystallization and the rate of crystallization. First, the tendency to crystallize is increased, as the temperature of the solution is lowered. Second, the rate of cooling largely determines the number and size of

the crystals formed—rapid cooling causing the formation of a large number of small crystals, whereas, slow cooling encourages the growth of large crystals. Third, the higher the concentration of the solution, the greater the tendency to crystallize. Consequently, any appreciable change in either the temperature or concentration of a super-saturated solution will cause crystallization en masse.

Following is an application of these principles to marshmallow. Let us consider for a moment a marshmallow cast in starch which has a temperature of 80 degrees F. in the first instance and 120 degrees in the second. In both cases the moisture in the starch is the same, say 5 per cent, and the temperature of the marshmallow at the time of casting, say 100 degrees F. In the first instance, with the starch at 80 degrees, there will be a slow drop in the temperature of the marshmallow, a condition of encouraging the growth of comparatively large crystals which in turn make the abstraction of moisture from within more difficult. This low temperature also brings about a quicker and firmer gelation of the gelatine, which gives a misleading body and texture to the marshmallow. When packed, such a marshmallow will sweat badly because of an excess of moisture in its center. It will also be slower to "come back" because of the large crystals permitted to form in it are slower to redissolve.



## MOVIE showing what takes place during the setting and seasoning of a marshmallow:



### 1 AFTER 4 HRS.

As sugar crystals form inside the skin they become enveloped in a syrup which contains non-crystallizable substances, principally gelatin and dextrin, which prevents formation of large crystals.

### 2 AFTER 6 HRS.

Moisture equilibrium has been reached and the marshmallow begins to set up. The average drop in the moisture content of the marshmallow has amounted to about 18%.

### 3 SAME

Gelatin passes from sol to gel phase on cooling and loss of moisture, preventing formation of dendroid structure.

### 4 AFTER PACKING

Equalization of moisture takes place. Crystals farthest from center commence to redissolve. The m/m is said to "come back".

In the second case, where the marshmallow is cast in starch at, say 115-120 degrees F., crystal formation consists of a multiplicity of very small crystals owing to the rapid drying caused by the hot starch. The speed with which the small crystals redissolve facilitates the subsequent redistribution of moisture in the marshmallow and provided the ordinary drying time is not reduced, too much moisture will be removed. Obviously, the most desirable temperature for the casting starch is between these two extremes, which is to say, blood temperature (around 98 to 100 degrees F.).

The condition of the air in which the marshmallow is allowed to "season" (temperature and relative humidity) also has a marked effect on the crystal structure. If the air contains too much moisture, let us say, 125 grains of moisture per pound of dry air, the marshmallow will be soggy, as in Case number 1. If that moisture is reduced to about 40 grains, the marshmallow will be too dry, as in Case number 2.

Other factors which usually govern a simple crystallization are mostly inoperative in marshmallow because two of its important constituents act as powerful crystal inhibitors. That is, both the gelatine and the dextrin in the corn syrup have a pronounced tendency to retard the growth and in some cases

prevent altogether the formation of these crystals. As a matter of fact, when a marshmallow is dried to an average moisture content of, say 10 per cent, the crystals become so fine that they can not be detected orally (by the tongue). Without the presence of these crystal inhibitors, it is evident that in a very short time our marshmallow would closely resemble a piece of hard candy so far as texture was concerned.

The "seeding" of a marshmallow solution is another interesting phenomenon. Whether the seeds consist of added crystals of sugar, grains of starch, of particles of dust from the air, upon falling on the surface of a saturated solution each may become the starting point for a crystal. Which, of course, explains the practice of adding powdered sugar to the batch near the end of the beating time to produce "grained" marshmallow — p e n n y goods. Other conditions being favorable, each of these little grains of powdered sugar acts as the starting point of dendrite—as previously

explained — thereby materially reducing the time required for the marshmallow to "set up." Here again, one is justified in questioning the advisability of adding powdered sugar for the purpose of seeding unless he is certain that the marshmallow is already saturated with respect to sugar.

Paradoxical as it may seem, at times fermentation may result from crystallization. As sugar crystallizes out of the solution a certain portion of the released moisture becomes available for dilution of the syrup film—consisting of sugar, corn syrup, gelatine, water, etc. If this film becomes sufficiently dilute and the other conditions are favorable for the development of microorganisms, fermentation will result. This type of fermentation can be prevented by reducing the amount of sugar in the formula. In order to prevent confusion on this point, however, it must be pointed out that a marshmallow containing too little or no sugar will also ferment under certain conditions.

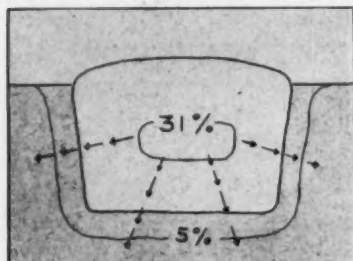
Which is most pleasing to you in texture and appearance—the top of a marshmallow or its sides and bottom? At the time of casting, all surfaces naturally were composed of marshmallow which was uniform in all respects. Yet, putting aside the formation of a starch paste at the junction of starch and marshmallow, the differences observable between the structure of the top and





## PEERING INTO A MARSHMALLOW

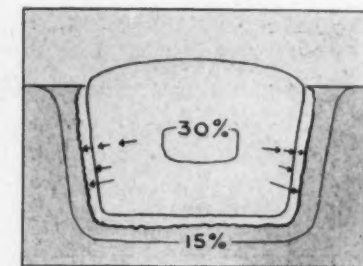
### Starch not dry enough:



A starch paste film is formed at the junction of the marshmallow and the starch because of the inability of the starch to distribute the moisture taken up from the marshmallow.

remaining surfaces of the marshmallow are due to difference in the rate of crystallization. Ordinarily, the circulation of the air about the stocks or between the boards of the starch trays is insufficient; the relative humidity of that air is, therefore, high and as a result the top surface of the marshmallow (and starch) loses comparatively little moisture to the air. On the other hand, the sides and bottom of the marshmallow come in direct contact with the starch, resulting in a fairly rapid abstraction of moisture. These differences obviously affect the rate of crystallization, and consequently the structure of the affected surface.

"Starch crust" is a source of trouble which most manufacturers dread and rightly so, for it is a factor which has a great deal to do with the appearance and flavor of the finished marshmallow. Starch granules, although insoluble in water, nevertheless possess the ability to absorb water to the extent of 25 to 35 per cent, depending upon the kind of starch used and the manufacturing treatment which it has received. Now, if the moisture in either the starch or the marshmallow at the time of casting is sufficiently high, a "paste" is formed at the junction of the starch and marshmallow owing to the inability of the starch to distribute with sufficient rapidity the moisture taken up from the marshmallow. On drying, a film of this starch paste adheres to the marshmallow drop and the familiar "starch crust" is the result. The starch paste or crust does not permit a free exchange of moisture between the marshmallow and the casting starch, and so one usually finds associated with starch crust a water-logged, fermentable



drop. The extent of discoloration caused by starch crust depends, of course, upon the age of the starch and the treatment to which it has been subjected.

Another interesting factor is the heat produced by the swelling of starch. For some reason, unexplained as yet, when starch swells due to the absorption of moisture, a definite amount of heat is developed. This heat of swelling varies with the percentage of moisture in the starch and also, according to the kind of starch. For example, rice starch containing no moisture will develop about 30 calories per gram of dry substance; the same starch containing 5 per cent moisture will develop 17 calories per gram; and at 10 per cent moisture, 9 calories per gram, decreasing the point where no heat is produced when the starch has absorbed 25 per cent of moisture. Although the production of this heat is beyond present means of control, it points again to the necessity of having some definite control over the starch so as to insure having this factor remain constant from day to day.

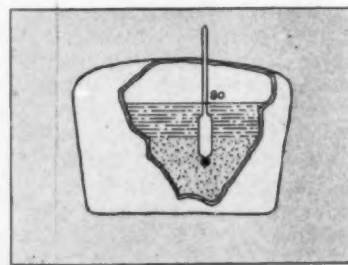
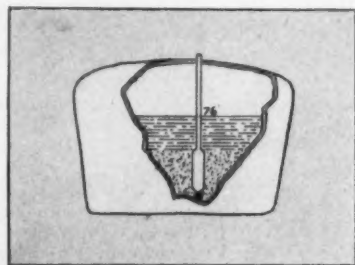
There are several reasons why it is important to foster the formation

of a suitable envelope or "crust." For example, if the marshmallow is dried too rapidly, this film may become sufficiently thick to cause "case-hardening," which will in turn prevent proper drying out of the center. On the other hand, excessive moisture in the center may cause a host of other difficulties, among them sweating in the container, poor texture, and fermentation. Similar reactions take place in seasoning and aging. A moisture "gradient" may be said to exist from the outside of the marshmallow to the center, being at a maximum in the center and at a minimum at the outside. After packing, there is a tendency for this gradient to become equalized and the tiny microscopic crystals which have been thrown out of solution are again dissolved. The marshmallow is then said to have "come back." And so the battle goes on, maintaining an extremely delicate balance.

The reverse condition, that is, with the center of the marshmallow containing less moisture than the outer shell, is not so often encountered. Its occurrence is occasionally made possible by some hygroscopic constituent of the marshmallow picking up moisture from the atmosphere.

The desirability of maintaining a uniform percentage of moisture in marshmallow is recognized by most manufacturers, although, until steps are taken to control the moisture in the marshmallow at the time of casting, the moisture in the starch and the rate of drying (temperature of starch and marshmallow and relative humidity of dry room), it will be impossible to control either the character and rate of crystal structure formation or the amount and distribution of moisture within the finished marshmallow.

### Fermentation (resulting from low syrup density):



Low sugar density of the syrup film (left) leads to fermentation difficulties. To avoid this, the solids content must be carefully controlled.





Far-sighted confectioners already have commenced to tie in with the health appeal that is in dextrose—the normal fuel which fires the human engine.

## The "All-dextrose" Marshmallow

Number Four in the M. C. "Pioneer" Series  
on Refined Dextrose—the Candy Industry's  
Newest Tool

By JOHN M. KRNO, Chemical Engineer  
(ADOLPH SCHILDTBERGER, Practical  
Candymaker, Collaborating)

**I**N view of the success of the candy laboratory with dextrose-sucrose combinations for coated marshmallows, an effort was next made to produce a dipping marshmallow made entirely with dextrose and containing no cane sugar. The value of a 100% dextrose marshmallow from a health and dietetic standpoint will be apparent to those who have studied the trend toward the simpler health sugars.

The difficulty here lay in the fact that dextrose is much less soluble than cane sugar, especially at the lower temperatures. Unless some way out of this problem could be found, this meant danger from crys-

tallization and hence a hardening of the marshmallow.

Now it has been determined as a result of painstaking investigation that when the dextrose content of a batch exceeds 55% on dry basis there is danger of crystallization. This is true only when there is no cane sugar present and where only the corn syrup dextrines are present as crystallizing repressants. Based on this limit, the following successful formula was built up:

### Chocolate-Covered Dextrose Marshmallow (Formula B)

- 50 lbs. Dextrose hydrate (Cere-lose).
- 180 lbs. Corn syrup, 43 Bé.
- 12 lbs. Invert sugar syrup (Nulomoline was used in the experiments).

6 lbs. Gelatine.

9½ ozs. Vanilla extract.

The process of manufacture was the same as that followed in making marshmallow A. Marshmallow B proved equally as good in keeping qualities as A, or as one made in accordance with a standard formula using cane sugar to replace the dextrose.

The marshmallows were deposited in starch which had a temperature of 100° F. The starch room temperatures varied from 115-120° F. The marshmallow pieces were removed from the starch after 12-14 hours.

### Safe Tolerances for Dextrose

If one had the idea that all the cane sugar in formula A could be

\*Sucrose-free.

## THE "ALL-DEXTROSE" MARSHMALLOW

replaced with dextrose, he would be courting trouble, for the dextrose content on a dry basis would then be above 62%. This dextrose content would represent not only the crystalline dextrose in the formula but also that entering by way of the corn syrup and the nougat cream. This total is more than 55%, which is the limit above which there is danger of graining. Even the additional preventative action of gelatin is not sufficient to prevent the dextrose from graining within, say, four months, particularly if the storage conditions are at all unfavorable. Fifty-five per cent is a safe, conservative limit for the dextrose content on dry basis in a marshmallow.

In formula A, where a mixture of the two sugars (dextrose and cane sugar) was used, it will be noticed that the ratio of corn syrup to the total crystalline sugars used is equal to 100:65. The commercial dextrose employed being a hydrate and the corn syrup containing 17.7% moisture, this same ratio on a dry basis would equal 100:75. This was found to be the most satisfactory ratio to work with.

If the ratio of corn syrup to crystalline sugars is changed in favor of the solid sugars in formula A, even though the change may not affect the keeping qualities from a graining viewpoint, it is not advisable to do so. The change would be made at the expense of corn syrup whose dextrins impart relatively high viscosities. Both cane sugar and especially dextrose solutions are lower in viscosity. This may markedly affect the beating of the marshmallow and may not be counter-balanced by the use of more gelatin or gelatins of higher Bloom test than ordinary. Cost being an important factor, it must also be noted that such a change needlessly increases the manufacturing expense.

If desired, the ratio of cane sugar to dextrose called for in formula A\* can be reversed. That is, 40 pounds of cane sugar to 25 pounds of dextrose can be substituted for the values stated. The texture, especially as to shortness and the "break" of the marshmallow, will change. This shows clearly the favorable effect of dextrose on texture. However, the keeping qualities, from the standpoint of its

tendency to grain, are not unfavorably affected by such changes.

### No Radical Change in Method

The process of making marshmallows for chocolate covering as outlined above does not involve any noteworthy deviation from the ac-

### Nothing New in Sugars?

*How many times have you heard it said that there is nothing new in sugars. True, perhaps, until a government scientist succeeded in producing on a commercial scale from American corn this most universal of nature's health sugars. Chemically, it is identical with the grape sugar that is in fresh grapes—and with the solid portion of candied honey. Doctors recognize dextrose as the normal fuel which powers the human engine. Many prescribe it as a diet sugar. The candies which form the basis for the effective slenderizing regime of Drs. Gordon and Von Stanley—are made with the refined dextrose which is the subject of this article.*

THE EDITOR.

cepted methods of marshmallow manufacture. Furthermore, this process is entirely flexible so long as one remembers to avoid including so great an amount of dextrose

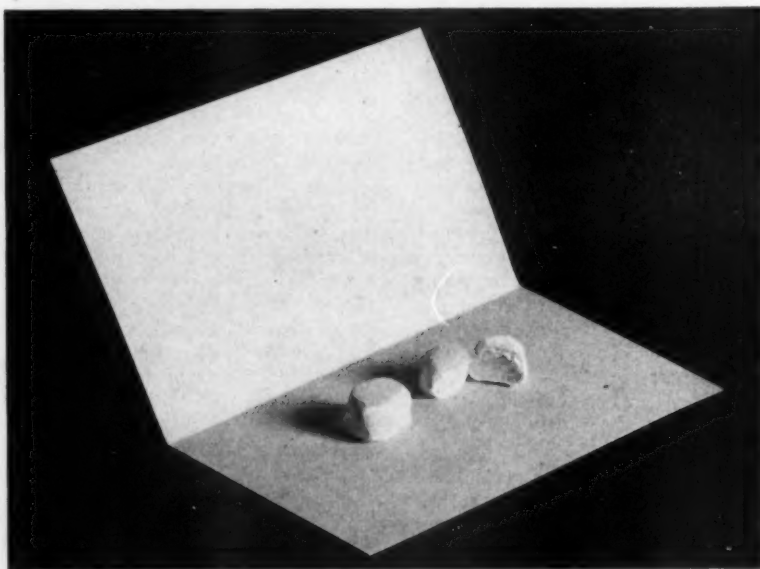
as to overstep its solubility in the presence of the corn syrup dextrines and gelatine used.

Some trouble has been experienced in the past with color of dextrose marshmallows. The manufacture of dextrose is rather young. The quality of commercial dextrose from the viewpoint of color is being constantly improved. The sugar available to the confectioner today is of much better quality in this respect than what it was when it first entered the market. In this connection it is in order to point out that better color can be obtained with a pure dextrose formula than with mixtures of dextrose and cane sugar.

Formula B, which does not call for any cane sugar, can be boiled on the acid side since dextrose can not be inverted. The pH was reduced to 3.5 with cream of tartar and tartaric acid. These were added to the dextrose-corn syrup mixture which was boiled to 230° F. A whiter marshmallow resulted, which kept its whiteness exceedingly well.

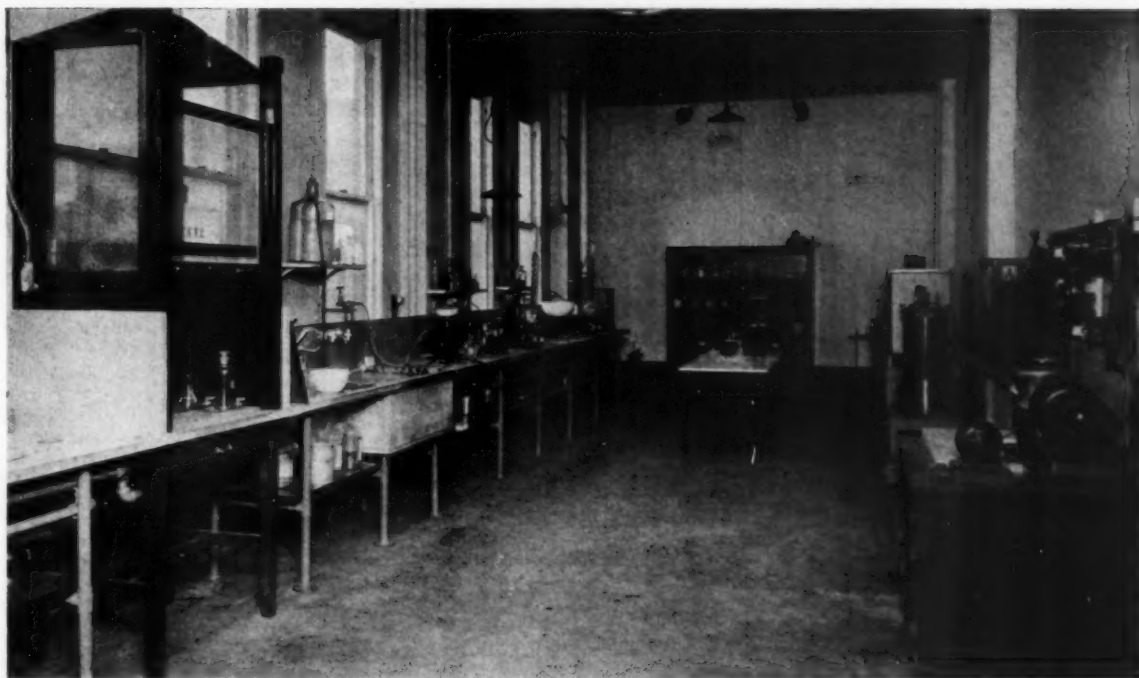
Since dextrose solutions have comparatively lower viscosities than corresponding cane sugar solutions it was thought that this might introduce a mechanical difficulty in the making of marshmallow. However, this difference in viscosities was not found to be troublesome even when no effort was made to

### Controlling Whiteness With Low pH---



Unlike batches containing sucrose (cane sugar), the "all-dextrose" batch may be cooked on the acid side (pH 3.5), thus insuring whiteness.

\*Formula A appeared in last month's issue. A limited number of back copies are available on request.



A general view of the Corn Products Refining Company Research Laboratory at Edgewater, N. J., under whose guidance the dextrose experimental candy factory works. The candy department is supervised by Adolph Schildtberger, a candy superintendent of international reputation.

overcome it. Of course, beating at a lower temperature, increasing the corn syrup or gelatine over the normal content, or using a gelatine of higher Bloom test than normal, would completely remove this objection.

#### Better Vehicle for Flavors

Dextrose being less sweet than cane sugar, was expected to affect the taste materially. It was found difficult to convince people that a marshmallow made in accordance with formula B did not contain cane sugar. When a characteristic flavor was used, this flavor was truer and *more pronounced* in the marshmallows made in accordance with these formulas. These flavors, especially the more delicate ones, were *not* sugar-killed.

Marshmallows made with dextrose can be said to have better keeping qualities as regards resistance to yeasts and bacterial life. As shown in a previous article, this is in part due to the increased osmotic pressure within the marshmallow brought about by the replacement of cane sugar with dextrose. The work of H. S. Paine in the *Journal of Industrial & Engineering Chem-*

*istry* (Vol. 19, p. 358), and in other articles, shows how this increased osmotic pressure prevents fermentation. Then, too, the action of organisms on the various sugars is specific. Ordinary yeast, for example, attacks levulose faster than dextrose. *Torula* also attacks levulose in preference to dextrose. A review of this literature on the preventive properties of dextrose indicates that in general *the susceptibility of candies to fermentation and bacterial spoilage can be lessened by the use of dextrose in place of other sugars.*

Marshmallows made in accordance with both formulas A and B were thinned until the moisture content equalled 39.5%. No fermentation or gas-producing bacterial action was noticed in these samples after six months' standing. Naturally, their texture differed from the normal 25-30% moisture marshmallows.

A slightly lower yield was expected from dextrose marshmallows since the present commercial form of dextrose is a hydrate. The actual difference in count was found to be negligible. Any unfavorable difference in this respect is more than counterbalanced by the usually

lower cost of the dextrose compared with the cane sugar which it supplants.

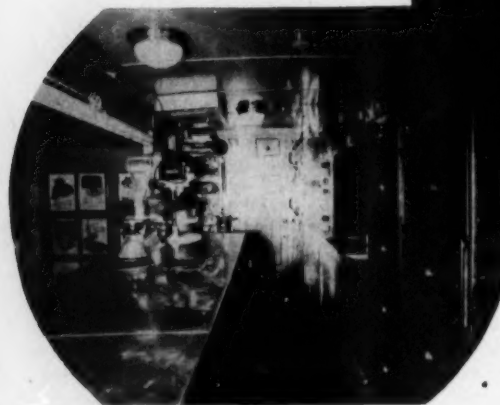
This first series of experiments by the Dextrose Candy laboratory has given us at least two basic formulas for chocolate-covered marshmallows which have proved satisfactory in use as to texture, appearance, taste and keeping qualities. The process for making them does not necessitate any marked deviation from the usual factory procedure. It has been demonstrated that there is a real field for a dextrose marshmallow, where the use of the new sugar will result in a tender, fairly short piece with a good break. Flavors are enhanced, and the keeping qualities bettered, while the production cost is lowered. Of the supreme healthfulness and dietetic virtues of dextrose, there is ample medical recognition.

*(Other dextrose candies will be treated in subsequent articles by Messrs. Krno and Schildtberger. Each of these articles will be entitled to a place in your permanent reference library. Make sure of your copies now by entering a permanent subscription for your home address.)*





This school on wheels tours all parts of the country teaching bakers how to bake better bake goods. It pulls up in a vacant lot, plugs its modern electric ovens into a nearby power line and is ready for business. How about getting a little educational circus like this under way in the candy industry?



# Let's Build a Real C

## Part II—Personnel Training

So it begins to look as though the first department in our Candy Institute (when, as and if) will have to be the Department of Research. The director of Mellon Institute finds that an industry fully aware of the principles under which it operates has no dread of the future. Improvements make the output more cheaply, or better, or both. Demand enlarges. New markets open, new uses develop. Better workmen are attracted. More capital flows in. The industry gains confidence and standing.

Had the confectionery business been as well entrenched as are some of its sister industries, with a well-informed public knowing candy as an essential food, how far would a certain smokey campaign have gotten? Not only would it never have reached first base, there would never

have been that first unlucky strike-out. Do you suppose intelligent tobacco men would have directed that millions of their capital be spent to attack an impregnable front? It is the weak point that gets the barrage and the poison gas attacks.

### Why They Picked on Candy

You don't hear much about such campaigns along the Ice Cream front, nor along the Bakery sector, unless by implication. Yet every food is fattening, to greater or less extent, when eaten to excess. The candymen were singled out to bear the brunt of this coffin-nail war because they lacked the supporting troops with which to fight back. We had been so doggone busy making sweets that we had forgotten to tell the consumer how really good they were for him.

We had neglected to show him

just how much healthful nourishment and energy we were giving him for his nickel or his dollar.

The question is often asked of what use is it to develop new methods of manufacture, complicated machines, precision instruments and processes until you have built up a body of technically-trained men who are able to use them intelligently?

That is a reasonable question. Candymakers—and there are many of us who learned the trade in the days of pan work and fifty-pound boils—find it increasingly difficult to work into ways that are more scientific, more technical, and more dependent upon the machines, figures and standards set by college-trained chemists.

A few of the large confectioners have been training their young men for a number of years, sending them to college in some instances



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*The first function of a candy institute is Research. That everybody knows. The second function is equally important but not so well known—personnel training. The Fleischmann people (now Standard Brands, Inc.), know how to do it. They bring the school to the factories (in their case, baking factories). The training caravan comprises two trucks containing all the equipment and accessories of a model bake shop. When the sides of the trucks are extended and covered with tarpaulins, an auditorium is formed accommodating 150 student bakers. A one to two weeks' course is given at each point on the itinerary, the school sometimes remaining over a third week in the larger cities for late registrants. The "auditorium" is kept crowded to capacity with foremen, superintendents and purchasing agents eager to learn more of the fundamentals of good baking. If an independent concern can find it to their profit to help educate an industry in so thoroughly constructive a manner, what's the matter with the candy industry's taking a few steps in its own behalf?*

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# alCandy Institute!

By ORVILLE H. KNEEN

and in many other ways aiding them to learn the fundamental scientific principles on which all sweet goods are made.

Unfortunately, this method of training is not general.

The great bulk of smaller candy makers cannot do this. Their time and energy must be signed over every day to keeping the wheels turning. Nor, indeed, are they always able to pay the higher wages that technical men require and command by reason of the time and capital invested in their own training.

## Cooperative Training

What is the answer? We must have technically-trained help. The success of the industry as a whole depends upon it. We find the answer in *cooperative training*. Bakers, ice cream makers, food

packers and the practical and technical men in other food lines are being trained by the score in the Institutes supported by their respective industries.

They are given combination practical and scientific courses in the best and most up-to-date methods of producing goods at lowest cost and of highest quality. Many of these courses, notably in the ice cream industry, are given at the various colleges and universities where dairying and related courses are a part of the regular curriculum.

After young men selected from ice cream plants have completed these courses, taken down lecture notes and worked out practical and scientific problems under actual operating conditions side by side with the best brains in the industry, these young men are well on their way to knowing about all there is

to know about ice cream.

They know how to control the mix at every point of the process, how to prevent spoilage, how to determine in the plant laboratory the exact quality of the raw materials available and how to combine them effectively to offset natural variations as they occur.

They know about the diet of healthy persons—and the place of dairy products, sugar and other ice cream ingredients in that diet (of which more will be said in a later article).

The point is that these young men are trained to assume charge of factories, even the largest, after they have acquired the necessary administrative and operating experience.

## Making the Future

That is the answer which the ice cream, baking and other industries closely allied to the confectionery industry have furnished to the crying need for technically-trained superintendents. That is how individual factories manage to keep abreast of scientific research.

*What company with men such as these managing their plant operations need have any fear of the future?*

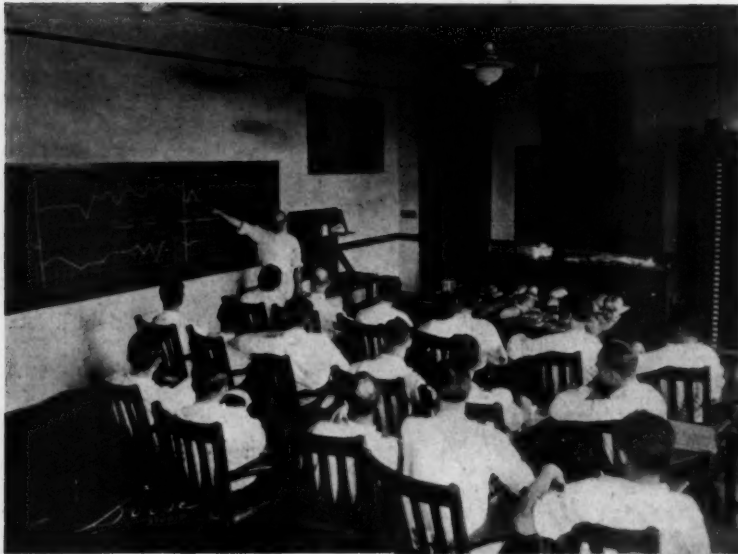
As a matter of fact, are these not the companies who are *making* the future? There they go—far, far in the lead—breaking trail, clearing away the brush and the deadwood, grading the right of way, smoothing the roadbed, and then pushing on, while their efficient machines hum along behind them, bringing home the bacon and the fat Net Profits!

Who Nell worries about his neighbor getting the jump on him, when together they have solved their common problems and each knows the basic principles of their business? Together they can hew out their own trails and highways and airlines to bigger and better bank accounts.

And together they can look back at their sweating, anxious competitors who don't research, don't cooperate, don't train their men, don't do anything for their future except worry. *Of course*, the latter are the ones who bring up the rear-guard. Where else would you expect to find them?

For a long time, a deep and dark suspicion has been dawning on the more progressive confectioners that

## A REAL CANDY INSTITUTE



Photos courtesy American Institute of Baking.

this oldest of industries has failed to keep step with American industry as a whole.

The signs are indisputable. One is "over production." In other words, while the candymen have kept on producing, the consumer has been induced by perfectly legitimate means to buy more of other sweet goods in preference to candy. Therefore, there has not been the healthy growth in our industry that other essential foods, intelligently merchandised, have been able to show.

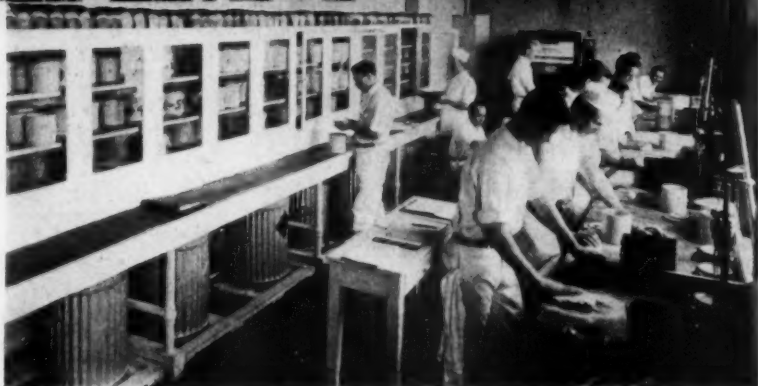
### Too Much Competition, or Too Much Dead-wood?

It is easy to say that there are "too many in the industry." It is even easier to show, that if one in five persons in this country were to learn how useful a food good candy really is, and invested only a cent a day additional in candy-food, there would be no over-production or excess capacity in candy-making plants of the efficient kind. Of course, the other kind always have excess capacity!

Would a Candy Institute, conducting up-to-date scientific research and training young experts in candy-making technique, enable *all* the present candymen to survive and grow wealthy?

By no means! *No* industry is so healthy that it can make sound timber out of dead-wood. The thriftiest tree has its dying branches. Sometimes they are lopped off. Or in

Experimental baking as taught in the resident courses of American Institute of Baking. Here the younger blood of the industry is educated along modern scientific lines and even the "old dogs" respond to new tricks.



time they drop off of their own accord. But if they are merely sick and they find out how to revive themselves, that's something else again.

*In the next ten years the confectionery industry will break or make itself for many years to come. If it takes those ten years to think about the sad times on which it has entered, or is entering, then its golden opportunity will have vanished.*

Other and younger food purveyors will have entrenched themselves so firmly that there will be no room

at the front for a virile candy contingent. If in ten years sweet-teeth are well filled with sweets other than candy, why, that'll be *just too bad* for the confectioner!

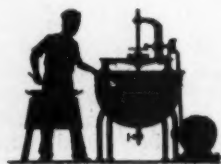
But today that is by no means true of the American sweet-tooth. Great numbers of people still use but little of any kind of sugar foods, whether candy, ice cream, carbonated beverages, pastry, or what not.

### It's a Big Market

The market is big enough for all. It's a fair fight and every industry that fights with modern weapons will get its fair share.

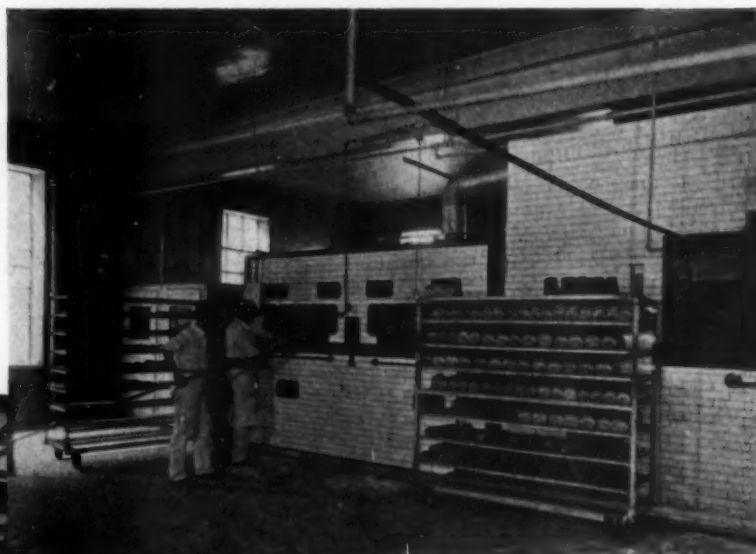
But new contestants for the consumer's dollar are entering the lists.

These up-and-coming folk have bright, young scientists working for them. Increasing amounts of their products are being placed directly in the consumer's sweet teeth. They are laying broad foundations of scientific research on which to build



## THE MANUFACTURING CONFECTIONER

Right—Oven room at the American Institute of Baking. Below—The mixing room. Advanced students work with man-size batches and gain in short period under competent instruction a practical experience in scientific baking which would take many years of apprenticeship in a factory to even approximate.



Photos courtesy American Institute of Baking.

huge structures, businesses which in ten years will loom up like a billion-candlepower beacon to a fog-bound aviator.

Where will the candy industry be then? Dwarfed and hopelessly outclassed, fighting among themselves for the leavings of these upspringing giants of the food industry? They are educating the public to the delights and the *dietetic excellence* of their products. Science aids them in experiments showing how the minerals, the vitamins and the sweetnesses which they contain are valuable additions to modern diets.

All of which proves what?

**THAT THE CONFECTION-  
ERY INDUSTRY MUST GET  
ON THE BAND WAGON!**

### Modernizing the Finished Product

If a new sugar is good for the body and satisfying to the soul, what in the name of his Royal

Sweetness is to prevent our using it in Modern Candies?

What law is there against making and offering and *telling the world* about candies with a high content of available mineral substance (as one manufacturer has already pioneered)?

If some sugars with less concentrated sweetness are desirable for the diet, especially for some folk; if they fill sweet-teeth without cloying, are economical and help the American farmer by adding to his products, why not produce new

candies made with these highly-endorsed sugars?

Will it be easy to "get in on" these new ideas, compound and mix and invent new candies, new flavors, new compounds, new appeals to a changing public taste?

**IT WILL NOT.**

And that brings us right back to where we started—to the doors of the Candy Institute—the Model Candy Factory.

How else *can* we develop the industry—open up new trails and convert them into highways leading into the land of milk and honey?

Shall we begin now or shall we wait ten years while we think it over? And if we decide to start something right away, can we afford it—will it devolve upon a few of the old war-horses—or—

### Making Research Self-supporting

Can the Model Candy Factory, with its technical research, its training courses for production men, salesmen and chemists, be made self-supporting? If so, how, when and where?

In succeeding articles we shall find out how our sister industries are financing their own Institutes, training courses and research. Of course, we promise nothing—but it's possible, barely possible, that they can tell us things we never dreamed of. Maybe point out a way whereby the entire industry can jerk itself up by its bootstraps—design and build a machine with





## A REAL CANDY INSTITUTE



Photo courtesy American Institute of Baking.

These men are trained to test their own materials and their own finished products. Nothing is left to chance. No phase of baking is too small to be overlooked. When will the candy industry put its personnel on a post graduate basis?

ample dollar-power to carry us all—then show us how to get aboard the bandwagon, large and small candy-men alike, and ride a self-propelled, up-to-the-minute chariot into the land where bigger and better bank accounts grow fatter.

Gather around, brethren, and listen to the mighty deeds of the

ice cream crowd, with their 35 per cent per capita increase in ten years; to the by-no-means half-baked achievements of the baker boys; to the neatly packed fruit of ten years' work by the glass container contingents, with their bacteriological laboratory, their chemical and engineering laboratories, and so on.

Stop, look and listen! If it be true that the deaf can learn to hear, the sightless to see, the dumb to converse in many languages, then the candy industry is ready to junk the covered wagon, convert the old oxen into beef, and build a machine that can take the Hills of the Future on high!

### Charles E. Foote, President of Foote & Jenks, Passes Away

The sudden and unexpected death of Charles E. Foote, President of Foote & Jenks, on February 6, was a shock to his many friends and associates. The end came in the city of Detroit, where Mr. Foote had gone for a three-day district meeting of the Episcopal church, in which he took an active part as senior warden of his home church at Jackson.

Mr. Foote was born in a log cabin in Saginaw County, Michigan, on October 31, 1859. His parents were descendants of early Connecticut settlers. Of a studious nature, he developed a love for botany; and this, with his early studies and training, had considerable bearing upon his life in later years. He was peculiarly well fitted for the field of activity he had selected for his life work.

Mr. Foote received his Ph. C. degree at the University of Michigan in the class of 1879; and on April 5, 1884, in company with the late Charles C. Jenks, established what has since been known as the firm of Foote & Jenks. Starting as a partnership, the business was incorporated in 1893, and Mr. Foote was made first President, which position he held at the time of his death. He enjoyed watching the steady growth of the business from a small beginning to an organization international in its scope of activities.

Mr. Foote specialized in organic chemistry, particularly as applied to essential oils and to aromatics; and to him, more than to any other person, credit is deserved and given for originating and pioneering the cold, mechanical process for making terpeneless flavors of the citrus fruits, now acknowledged by authorities on the

subject to be a forward step in the science of flavor making.

The loss to his associates and friends spreads to the flavor industry itself, as well as the food trades; as the loss of one whose life, well lived, contributed much to the progress of the industry. His life is worthy of emulation, and will serve as an inspiration to his business associates who will carry on as before, perpetuating the name of Foote & Jenks and the policies which Mr. Foote endorsed so heartily.

### Fritzsche's Canadian Branch Moves to New Quarters

After March 1st Fritzsche Brothers of Canada, Ltd., will occupy new offices at 77-79 Jarvis Street, Toronto, Ontario.

This move is necessitated by the steady progress and unusual growth of the Canadian Branch.



# Now, that's a question —

*Every month the Editor asks ten questions which every intelligent candy man should know. How do YOU rate on these questions?*

1. How would you explain the greater tendency of chocolate goods to lose their gloss during the factory luncheon period?
2. What is the maximum humidity above which chocolate goods should not be exposed?
3. What precautions for keeping down the relative humidity can be taken by plants which are not equipped with air-conditioning equipment?
4. Why is it desirable to blend cocoa beans after roasting instead of before?
5. What new sugar is now commercially recoverable from beet molasses residue and what is its significance to the candy industry?
6. How does the presence of atmospheric moisture affect the structure of hard candy?
7. What ingredient of hard candy exercises the compensating function of retarding crystallization and keeping the hard candy dry?
8. How may inversion in hard candy be retarded?
9. What is our present per capita consumption of sugar of all kinds?
10. How is the spray drying process likely to affect the future of milk sugar as a sweet foods ingredient?

(The answers to the above questions will be found on Page 62 of this issue.)

## Wm. G. Ungerer Passes

William G. Ungerer, President of Ungerer & Company of New York, known for many years to the confectionery trade, died at his home on February 27th after an illness of several weeks during which time he was confined to his home. He was sixty-two years old.

Mr. Ungerer was born in Rochester, N. Y., studied as a youth in Paris and later spent several years in the Alpes Maritimes studying the perfume industry. He returned to America and became a perfume chemist for Colgate & Company. In 1901 he left this concern and organized his own firm, to deal in perfume raw materials. This company succeeded the one founded by his father in 1893.

In 1927 Mr. Ungerer was made a Chevalier of the Legion of Honor by the French Government for his activities in raising funds to purchase ambu-

lances for the American Ambulance Field Service during the War and for the support of an orphan colony at Grasse.

He was founder of the New York Drug and Chemical Club and of the Aroma Club of New York. Mr. Ungerer's constructive influence has been felt in many directions. His passing will be the source of keenest regret to his many associates and friends, particularly those in the confectionery industry.

## New Ownership for Julia King, Inc.

The candy business of Julia King, Inc., will be taken over by The Julia King Candy Corporation, recently formed for that purpose.

Mr. W. W. Miller associated until recently with Mrs. Stover's Bungalow Candies will be President and General

Manager of the new company. Mr. Robert W. Phelps will be in charge of sales and Mr. James O. Miller will supervise production.

The new corporation proposes to expand the sale of Julia King's Candies through selected agencies in the middle west.

## Cincinnati Fruit Extract Works Have New Selling Agents

Thomas J. Shields of 11 Water St., New York City, has been appointed selling agent in the Greater New York, New Jersey and Connecticut territory, for the Cincinnati Fruit Extract Works, to handle their various fruit lines and other materials offered the confectionery and ice cream trades.

Mrs. Shields also represents the firm of James B. Day & Company of Chicago, manufacturers of "Nu-Pros" Candy Glaze.



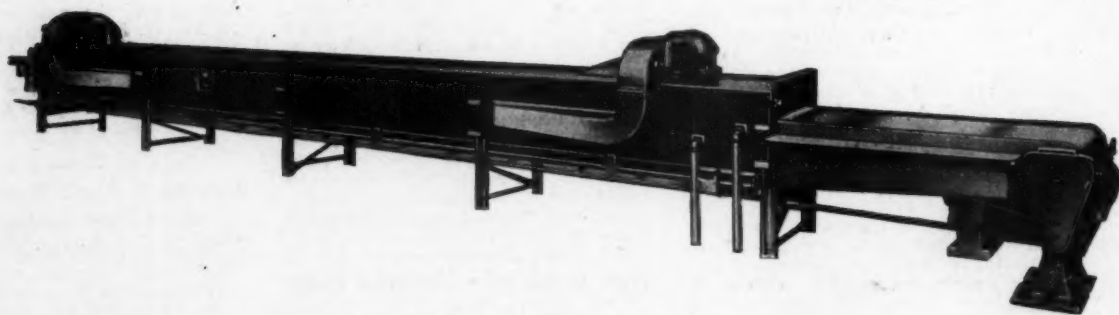
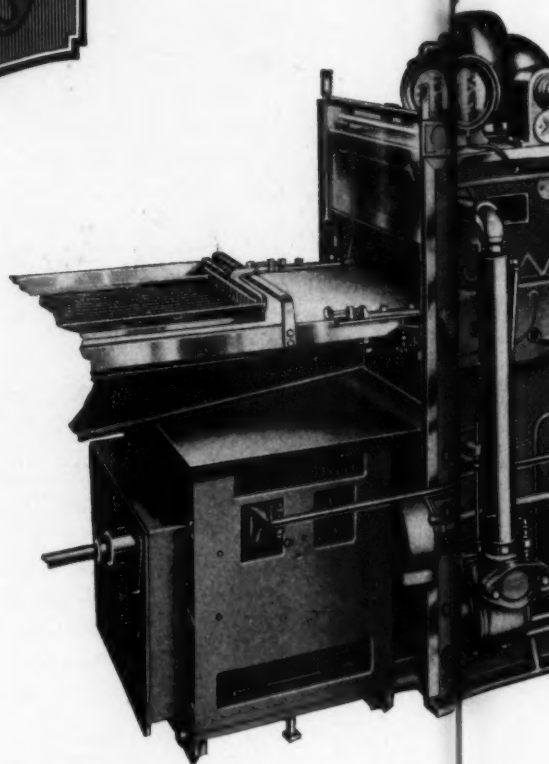
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Confectioners Machinery  
*that pays dividends*

Don't risk your profits on  
chance selected Coaters and  
Tunnels.

The Greer Unit is a real  
machine, give it electricity and  
chocolate and watch the results.

Just ask for facts and figures.



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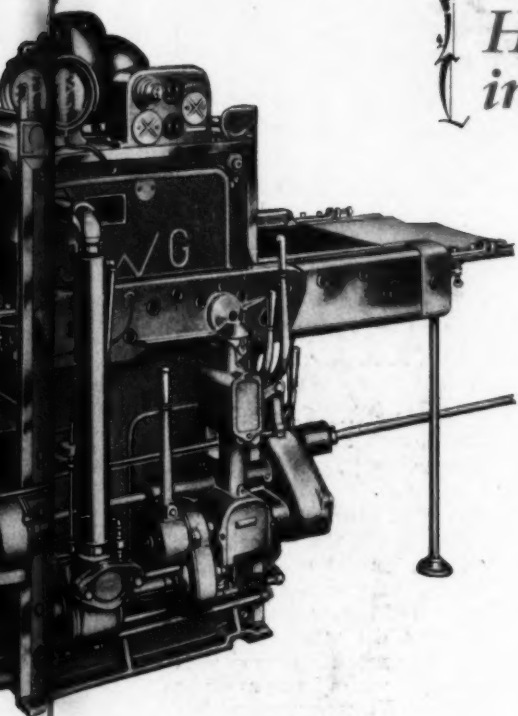
Manufacturers of Confectionery  
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119-137 Windsor Street

CA

# "PROFITS"

*How they can be increased  
in your business in 1930*



Profits the most important word in business. You must have profits if you are to go ahead successfully. Profits are essential--competition is keen for every "profit dollar"

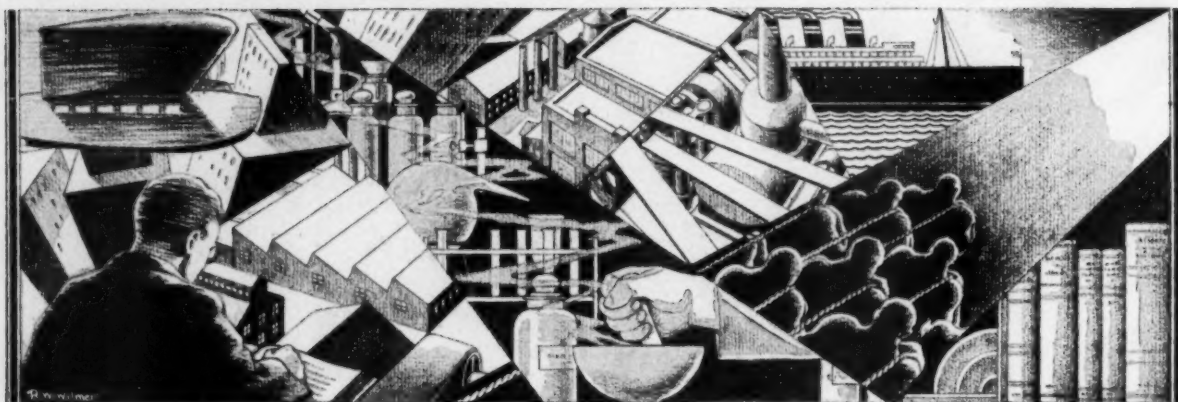
This year profits will go to concerns that get things done more efficiently and at lower cost. Among other things these concerns will substitute efficient coating equipment for out-of-date machines and hand work.

It is a mere routine duty for a Greer Unit to turn out 6000 lbs. of quality products per day.

**EE COMPANY**

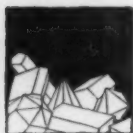
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## Monthly Digest of CURRENT TECHNICAL LITERATURE

### A Possible New Sugar for Use in Candy



*Food Industries,*  
vol. 1, p. 484 (1929).

**H.** W. DAHLBERG, research manager of the Great Western Sugar Co., in an article on "High-Grade Sugar Reclaimed from Low-Grade Molasses" describes the new plant and barium process used by that company for producing sugar of excellent quality from low-grade beet molasses.

The final molasses residue contains the interesting sugar raffinose, which has a very striking action in greatly retarding the crystallization of cane and beet sugars and should therefore be of value in candy manufacture. A process has been worked out for the recovery of this sugar in ton lots from the final molasses residue, and if volume outlet can be found, it can be produced in large quantities at a reasonable price.

### Climate and Candy

By R. H. Morgan.  
*Food Manufacture,*  
vol. 3, p. 451.

**T**HE author discusses the influence of atmospheric temperature and humidity on the keeping quality of candy. It is important

to regulate the degree of inversion of cane (or beet) sugar, since the sugar levulose which constitutes one-half of the invert sugar produced has a pronounced tendency to absorb moisture. The sugar dextrose, which constitutes the other half and is also present in corn syrup, is another contributory factor to absorption of moisture.

Dextrose has a great tendency to form dextrose hydrate by absorbing moisture from the atmosphere. Dextrose hydrate is crystalline in character and hard candy, for instance, covered with small crystals of dextrose hydrate after exposure to a damp atmosphere may yet feel comparatively dry to the touch. This superficial crystalline formation probably induces a sympathetic action in the interior of the candy, since sugar in the vitreous condition of hard candy is in a state of unstable equilibrium; consequently the crystallization works through to the center. A film of moisture, indistinguishable to the touch, when present on the surface of hard candy is sufficient to start crystallization, however carefully the package may be sealed.

The dextrin present in corn syrup is believed to be responsible for certain rigidity effects in candy and is regarded as a protective colloid which tends to prevent absorption of moisture by the sugars present. Sulfur dioxide, which is sometimes used in corn syrup, acts as a drier and hardener owing to its

affinity for water. Certain weak acidic salts, such as acetates, phosphates and citrates, can be used to retard inversion.

Bottles with caps, provided with dehumidifying substances to reduce the moisture content of the air in the bottles, vary considerably in efficiency. The author gives figures showing that the moisture-absorbing power of various bottle cap pads on the market varies by as much as 450 per cent. Temperature and humidity tests can be carried out on a small scale in the factory with the use of a hot air oven, and sulfuric acid solutions of various strengths placed in desiccators will give atmospheres of required humidities.

### New Method of Production of Chocolate



British Patent No. 321,641 to E. M. Pommier. *The Illustrated Official Journal*, No. 2,138, p. 7,194.

**I**NSTEAD of using ordinary granulated sugar for sweetening chocolate, raw cane sugar is dissolved in water and to the syrup produced is added 2.5 to 4 per cent by weight of vegetable decolorizing carbon. The mixture is filtered and yields a cane sugar syrup containing the invert and non-crystallizable sugars of the raw cane sugar. Roasted cocoa beans, preferably an equal



weight, are added to and mixed with the sugar syrup and the mixture evaporated, the resulting mass being put through the usual grinding operations and finally cast in molds.

### Origin and Prevention of Humidity Troubles in a Chocolate Candy Factory



By J. Valentine Backes. *Food Manufacture*, vol. 2, p. 229.

THE author discusses precautions for controlling humidity, especially in factories that are not provided with air-conditioning equipment. Chocolate of certain types will absorb moisture from an atmosphere of 77 per cent relative humidity. Therefore, if possible, chocolate should not be exposed to relative humidity greater than 75 per cent.

Atmospheric humidity in the factory can be reduced by such precautions as filling fire buckets with dry sand instead of water and avoiding washing of floors on days of high humidity. Fluctuation of temperature causes deposition of moisture and must be avoided. In winter the departments should be warmed by circulation of warm air, for instance, by blowing air, by means of a fan, over an electric heater which can be automatically controlled by a control thermometer.

When the relative humidity is unusually high, deposition of moisture on the goods can be prevented by raising the temperature of the department a few degrees and also by reducing the number of persons per cubic area to a minimum. Sixty girls, for instance, in a packing room emit over  $\frac{1}{2}$  gal. of moisture per hour by respiration. If the air space in the room is relatively small the air, if already of high humidity, soon becomes saturated with moisture and, at the slightest fall of temperature, moisture will be deposited on the goods. This explains why goods can lose their gloss during the luncheon period. When the girls leave the department the temperature falls and, if the air is of high relative humidity or approaching saturation point, deposition of moisture occurs. Thus, it is important not to overcrowd departments.

Since the air space in a box of candy is small, only a very small amount of moisture is required to bring this volume of air to the saturation point. This moisture may be introduced into the box in many ways, e. g., in paper shavings, packing materials, gum from the box, etc. The glue used for sticking paper to paper-faced cardboard boxes contains a high proportion of water. If the paper is a glazed one, this water will not have much chance to escape, but will be absorbed by the cardboard. Such boxes should be dried before packing, by allowing them to remain open for a day or so in a room of low humidity or by drying in a current of air (not too warm). Paper shavings, etc., can, with advantage, be dried in a hot room (100° F.). Paper "runners," cups, etc., should all be tested for undue moisture.

### Commercial Methods of Increasing Vitamin D in Foods



Anon. *Food Industries*, vol. 1, p. 136.

THE following information is given to inform readers regarding possible commercial processes available to food manufacturers for increasing the vitamin D content of foods. Owing to the restrictions surrounding licensees under some of the patents, together with the complexities of the legal and business aspects involved, the statement is reduced to a bare recital of what are believed to be facts.

1. The Steenbock patent, granted August 14, 1928, to Prof. Harry Steenbock of the University of Wisconsin, has been assigned to the Wisconsin Alumni Research Foundation, 1041 The Rookery Bldg., Chicago.

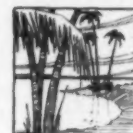
2. The MacChesney (also called the Chesney) patent is controlled by the Solar Research Corporation, in care of the Quinlan Co., 35 Wacker Drive, Chicago.

3. The Paccini patent, granted August 14, 1928, is understood to be controlled by Charles M. Richter, 36 South State St., Chicago.

According to rumor, there are other methods that may be soon available.

(The continually increasing discussion of the vitamin content of foods makes it important for every food manufacturer and producer to give careful attention to this subject. Candy manufacturers may well consider the advisability of following the example of certain food manufacturers who are artificially increasing the vitamin content of foods deficient therein.—Editor.)

### Manufacture and Composition of Chocolate Products



By Frank C. Gephart. *Food Industries*, vol. 1, p. 100.

THE author describes the different steps in producing chocolate of various kinds. The process of roasting is very important from the standpoint of flavor. Each variety of cocoa bean requires individual roasting to bring out its best qualities; hence beans should be blended after roasting. Certain varieties possess pronounced "body" qualities, others are known for their flavor quality, still others for their color quality. By skillful blending a well-rounded product is obtained.

Milk chocolate may be made by three distinct types of processes; by the use of fresh whole milk, whole milk powder, or a mixture of skim milk powder and pure butter fat. The requirements of the law are satisfied, provided the constituents of milk solids are present in the proportions found in whole milk.

Coating chocolate should be placed in cold storage, as some improvement in texture and flavor follows such treatment. The author gives a number of typical analyses of chocolate coatings and milk chocolate.

### Lactic Acid

*Omega. Chemical Trade Journal*, vol. 84, pp. 559-60, 581-2 (1929).

HIGH-GRADE lactic acid of edible quality is being used in increasing amount in the beverage and other industries to replace citric and tartaric acids. The acid lactate is also being used instead of cream of tartar.

Commercial production of lactic

acid started about 1870. It was originally obtained from milk products, but on account of low yield, starchy raw materials were substituted. As a result of recent research it is probable that whey or buttermilk may again come into use as raw material for lactic acid production.

### Methods of Controlling Insect Infestations



By Charles H. Peet.  
*Food Industries*, vol. 1, pp. 456-460, 500-503 (1929)\*

**I**NSECT pests are becoming more serious because of improved transportation to all parts of the world. Pests that, through climatic or other conditions, are self limited in one locality are carried in shipments of material to new environments in which the factors that restrained their development are lacking and hence reproduction proceeds in unrestrained fashion.

Freezing is not effective for destruction of insects, since insect eggs retain their fertility when kept cool or frozen. Practically every variety of insect egg can be rendered sterile by heating to 120° to 130° F. If the infested material is not damaged by these temperatures and facilities are available for heating for the necessary period, this treatment can be depended upon to give positive results.

The contact method, depending on bringing the insect into contact with a destructive chemical substance, is suitable in candy factories for the destruction of flying pests which do not hide in unusually inaccessible places, and is, probably as simple and satisfactory a method as can be applied. However, the use of a fine mist or spray which kills only insects that come in contact with it and has no effect on the insect eggs is of restricted value.

The most effective method for the control of storage insect infestation is fumigation. The action of hydrocyanic acid gas is quite certain in the case of most insects, but it should be used only by skilled operators. On account of tendency to impart the odor or taste of the spray or fumigant the use of fat-soluble chemicals should be avoided in the

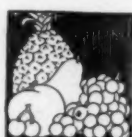
presence of fatty materials, such as chocolate, milk, butter, etc. It should also be kept in mind that hydrocyanic acid gas and sulfur dioxide (sulfur fumes) damage and discolor many kinds of equipment.

### Chocolate Liqueurs

British Patent No.  
278,025 to P. M. Sallerni.

**I**N THE manufacture of chocolate liqueurs or similar confections, in order to prevent the liquid from dissolving sugar from the shell or casing, the casing is provided with a lining or interior coating of a substance such as cocoa butter prior to the introduction of the liqueur or liquid. The cocoa butter is introduced by means of a nozzle inserted through the casing, the surplus cocoa butter beyond that required to form the lining being withdrawn through the nozzle. After introduction of the liquid the hole is closed by the insertion of chocolate with cocoa butter applied thereto.

### The Candying of Fruits



By W. V. Cruess,  
Associate Professor  
of Fruit Products,  
Univ. of California.  
*Food Manufacture*,  
vol. 2, p. 313.

**P**ROF. CRUESS gives detailed directions for preparing candied or glacé fruit, including preparation of the fruit, preliminary boiling and first syrup, second boiling, subsequent boilings, storage in final syrup and draining after drying. Shriveling of the fruit during the syrup treatment is usually an indication of insufficient cooking during the first boiling.

Fruit prepared as described will be more attractive in appearance and less apt to develop a coating of sugar crystals if coated with a dilute pectin solution (pectin glacé). A solution prepared from dry pectin, such as powdered lemon pectin or apple pectin, is to be preferred to pectin syrups containing juice impurities, as the latter are likely to cause the coating to become sticky.

For preparing the pectin glacé dissolve the dry pectin in the ratio of 2 ozs. per gal. of water by heat-

ing and stirring and then allow to cool. Remove the fruit from the final syrup, dip momentarily in hot water, drain 20 to 30 minutes to remove syrup, and dip in the pectin solution. Drain and dry at room temperature 4 to 5 days, or in the evaporator at 120° to 130° F. for 4 to 6 hours as described, and pack.

In experiments conducted by Prof. Cruess in the Fruit Products Laboratory it was found that candied and glacé fruits could be kept indefinitely in glass jars or tin cans sealed under a vacuum. Suitable equipment for packing the fruit in this manner on a commercial scale is available. The vacuum prevents molding and insect growth and the air-tight seal prevents drying out of the fruit.

### Lecithin and the Aroma of Butter and Oleomargine



By Bruno Rewald.  
*Food Manufacture*,  
vol. 4, p. 189.

**T**HE following is of interest to the candy industry from the standpoint of use of milk chocolate and also in view of the proposed use of lecithin to retard "graying" of chocolate.—Editor.

The lecithin in milk, and also in butter fat, has a decisive influence on the aroma. This may be demonstrated in the following manner: One quart of fresh, sweet cream is divided into two equal portions and to one of these portions is added about 2/5 oz. of lecithin, obtained from leguminous plants. The two portions are then left to sour spontaneously at a temperature of 54° to 59° F. After 24 hours the portion to which lecithin was added will be found to possess a much stronger and more intense butter aroma than the other.

In view of these and similar tests, the special consistency of butter and its peculiarly pleasant aroma appear to be in direct relation to its particularly high content of lecithin. Already lecithin obtained from the soya bean is being used extensively in the manufacture of oleomargarine for the purpose of producing a butter aroma and improving the consistency.



A class in session learning the intricacies of applying confectionery decorations

## Speaking of Candy Schools— Philadelphians Have One for Egg Decorators

**P**HILADELPHIA claims to be the Easter Egg Capitol of these United States; so we are not surprised that the first school to teach Easter Egg ornamenting originated in the Quaker City.

The reason for the existence of this school can be placed like so many other new thoughts and enterprises on the recent argument this and other countries had with the now Mr. Wm. Hollenzollern. It appears that before the war, nearly all our skilled ornamentors came from Germany, receiving their training and apprenticeship under the old masters in that country, but during and following the war, no young men received such an education. This left a dearth of skilled ornamentors, which in Philadelphia was becoming more acute every Easter.

Last year the situation became so desperate that many men with only partial training were receiving wages equal to that of the highest skilled workmen. Here is where the Philadelphia Journeymen Confectioners and Cake Bakers Beneficial Association stepped into the breach. Said they, "if these untrained men

are permitted to continue to do work, the enduring prestige of Philadelphia Easter Eggs will suffer and there will be a possibility of a falling off in the business, hence our members will not receive as much work as they have heretofore. We must teach the young men to be first class workmen and keep up the appearance and workmanship on Philadelphia Easter Eggs. We will organize a school and instruct just as was done in the old country."

So the Ornamenting School of the Philadelphia Journeymen Confectioners and Cake Bakers Beneficial Association was organized, and gave its first lesson on September 11th, 1929.

Mr. Chas. Orth, an active member of the Association and instigator of the idea, was retained by the organization as head instructor and given full charge of the course of instruction. He has been in the employ of Chr. Sautter and Sons, an old established, and one of the finest type confectionery and catering firms in Philadelphia. His firm donated to the class, the use of their workshop, located at 1417 Locust Street, Philadelphia, Pa.

The course continues until May

and consists of twenty-four lessons of two hours each. The students pay a nominal amount for the instructions.

### Here is Mr. Orth's story:

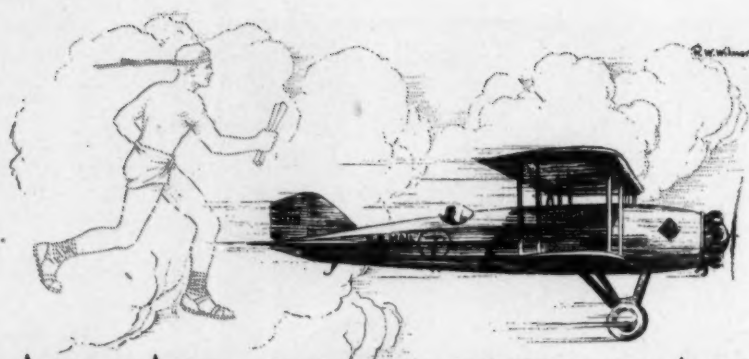
**"I** TRY to give the students the same thorough training as we older decorators received in Germany, said Mr. Orth. The first lessons were devoted to the making of icing. A smooth icing that sets quickly and holds firmly to the egg, is most important.

Many confectioners used to have trouble with their decorations and borders coming loose. This has been greatly eliminated by the manner in which the ornament or border is set on the egg and by the addition of gum to the icing. We teach this to the students and also in my first lessons, the making of paper tubes and the cutting of them to make the different leaves, borders, etc. We find that the hand made paper tubes are better than metal tips, especially in chocolate work where the metal is apt to scratch and mar the egg.

The second course of lessons consists of arm motion; teaching the students a free, easy and sure swing

(Continued on page 64)





## AS WE SORT THE MAIL

Questions addressed to this department will be answered by us from month to month. Readers are invited to make this a forum for informal discussion of subjects of general interest to the candy industry.—The Editor.

Upon perusal of your interesting paper, to which we are subscribers, we notice you have a special department, "The Candy Clinic," in which various candies are examined and an opinion is given.

We are the biggest candy manufacturers in Peru and our goods find a ready sale in many parts of the country, especially in the interior, where, due to the altitude and the ensuing cold climate, conditions are very favorable for the preservation of the goods.

In certain parts of the country, however, where the climate is very warm, our candies cannot be kept for a long time, and we have had complaints to the effect that soon after arrival of the goods at customers' stores they become sticky and form a compact mass in the containers, which, of course, renders the candies altogether unsalable. It would seem from the complaints received that Plastic and Rock Caramels are particularly unfitted to withstand the warm climate in Northern Peru.

As we are naturally desirous of improving the quality of our goods, we beg to ask whether the superintendent in charge of the Candy Clinic could kindly give us some advice as to how the defect we have referred to can be eliminated, and, in order that he may give an opinion, we are sending you by this mail, under separate cover, a package

containing samples of our Plastic and Rock Caramels.

We might mention that American, English and German caramels that are also imported in Northern Peru seem to withstand the warm climate much better, as, although they become slightly sticky with the time, they do not so easily turn into a solid mass in the containers as ours do.

S. C. (Peru).

Sample of goods received was completely grained. The flavors used were very good. Workmanship was very good.

The following formulas are being used in a number of large factories in the United States, both for hot and cold climates, and keep in perfect condition. Suggest you use the formula with glucose. If you are using fire-cooked goods use cane sugar, "doctor" with cream of tartar and cook to 335 degrees.

### For Fire Goods

20 lbs. sugar (cane)  
2½ qts. water  
2 level teaspoons cream of tartar  
Cook to 335° F. Pour on cold slab.

If you are cooking under vacuum, use this formula and your goods will keep in first-class condition in any climate:

### For Vacuum Goods

75 lbs. sugar (cane)  
25 lbs. glucose, or corn syrup  
3 gallons water

Cook to 280° F., turn off all steam, pull 28 to 29 lbs. of vacuum for ten minutes.

All-sugar goods may be cooked the same way, but will not last as long or keep as well as the goods made with glucose.

All candies, as samples, have to be kept in air-tight containers, regardless of what formula is used or how goods are made. If glass jars are used, air-tight caps or covers are needed; if packed in tin cans, a friction or vacuum top is needed. Pack goods in dry rooms and keep in a cool storage room, 65 to 70° F. This class of candy must be kept in air-tight containers at all times.

I am writing you thinking that perhaps you can help me in putting up a candy laboratory and research room. I have been studying chemistry for three years and with the candy knowledge I have, we are going to install a candy laboratory at the factory.

What I need your help on is—what kind of chemicals and apparatus shall I need; also what would you suggest for a full lay-out for a candy laboratory?

T. P. F. TENNESSEE.

IN order to answer your question satisfactorily, it is necessary to determine first—just how far you want to go into the matter of expense and just what sort of controls you wish to install. For example, to fit out a complete analytical laboratory (which you would scarcely be qualified to do with three years of chemical training) would cost a minimum of about \$5,000. On the other hand, it is hardly possible that you would need such an elaborate outfit at the start.

Depending upon the type and character of the confections you make, you may need:

1. A moisture control.
2. A fat control.
3. A pH control.
4. A sugar control.
5. A viscosity control.
6. A raw material quality control.
7. A finished product quality control.

trol.



Some of these controls have been simplified to a point where an elaborate installation is no longer necessary, i. e., if comparative rather than exact accuracy is all that is required.

For example, the apparatus for a moisture control system may be purchased for around \$27.00. To install a simplified system of fat control would probably run to around \$150.00, and so on. A lot will de-

pend upon the nature of your present problems, the types of candies you manufacture, and how much the traffic will bear at this time. Your candy experience will be invaluable to you in setting standards and interpreting the results of your analyses.

We are glad to see you make the start. We wish every manufacturer who has no laboratory would go at it as you are doing.

We have asked one of our tech-

nical experts to prepare an article on this subject because we feel the situation is one in which many other confectioners find themselves at one time or another.

Write, giving us more detailed information, and if we are unable to devote all the time to it which you may require we will be glad to recommend consulting services which will help you to get started along the lines we have suggested.

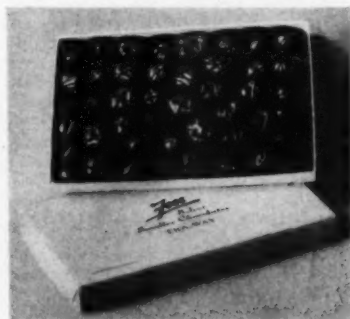


## M.C. INSTITUTE

An impartial reader service devoted to the analysis and discussion of the new or novel methods of manufacture, supplies and equipment.

**T**WO distinctly novel ideas in packaging which have come to our attention during the past month offer interesting possibilities to the confectionery manufacturer. How these packages will be accepted by the consumer is still a matter of speculation.

The first of these is a brand new idea for the merchandising of bulk chocolates of the 80-100 count variety. The chocolates are packed in a box, or "tray" as the manufacturer prefers to call it, holding a single layer of candy. The trays come packed 12 to the carton. Each tray weighs 8 ozs. net, is wax-lined and covered with an inexpensive stock cover paper, printed in blue and tied with 1/4-in. red ribbonzene.



Illustrating the "tray way" of handling chocolates ordinarily sold in bulk. Each tray holds 8 ounces of 80-100 count chocolates.

The chocolates are individually cupped, but no other findings or accessories are employed.

The idea is to sell these trays in competition with bulk goods and, presumably, at bulk goods' prices. It saves the clerk's time in weighing out, saves the usual loss of 5 per cent in shrinkage of bulk goods and saves the cost of paper bags, folding boxes, string, etc.

These small packages should meet with generous consumer acceptance. No re-handling is necessary as in the case of bulk chocolates—a fact which offers a sanitary appeal to finicky-minded customers. The package is small, fits easily into the pocket and last but not least, the consumer is getting a \$1.50 or \$2.00 grade of chocolate, minus the usual showy adornments, for \$1.00.

The second package comes from England. It is obviously the brain child of some alert English contemporary, who had the perception to see in a trivial and commonplace annoyance possibilities that have heretofore been entirely overlooked.

What individual who has attended the theater and attempted to help himself or herself to candy from the ordinary package during a dramatic passage has not inwardly cursed the noisy crackling of paper which accompanied this seemingly simple operation? Who has not felt the burning belligerence of eyes from all over the house focused upon

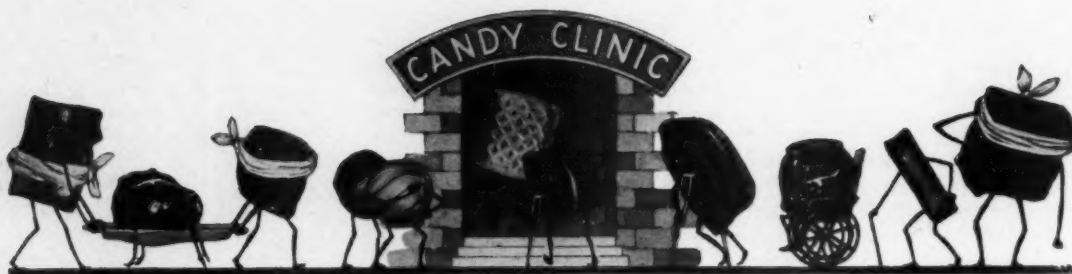
him? So our British friend has devised a *noiseless* package made expressly for such occasions when absolute silence is demanded. With such a package one can indulge his appetite for sweets with perfect equanimity, and not have his relish spoiled by the embarrassment of feeling that everyone else in the theater (or church) resents his intrusion upon their enjoyment.



The "noiseless" package as developed in England—a boon to theater-goers.

The package is unusually attractive. It is compact and round, containing 1/2 lb. of assorted chocolates. The box is made of a good quality of book-lined board, printed in several different designs in color and tied with twisted silk cord matching the predominating color of the particular box of which it is a part. Each package contains three layers of chocolates, separated by layers of wattoline. Crackly papers are entirely eliminated. Thus you have the one and only (for the time being) noiseless candy package.

We wish the manufacturers of both these packages much success. The novelty and originality of their ideas is deserving of such reward.



*The Candy Clinic is conducted by one of the most experienced superintendents in the candy industry. Each month he picks up at random a number of samples of representative candies. This month it is dollar chocolates; next month it will be homemades and Easter goods. Each sample represents a bona-fide purchase in the retail market, so that any one of these samples may be yours.*

*This series of frank criticisms on well-known, branded candies, together with the practical "prescriptions" of our clinical expert, are exclusive features of the M. C.*

## Dollar Chocolates

Code 3A 30

### Assorted Chocolates—1 lb—\$1.00

(Made in California.)

(Purchased in a cigar store, East Oakland, Calif.)

**Appearance of Package:** Very attractive and of unusual proportions.

**Box:** Orange embossed paper used. Yellow and orange colored ribbon-zine tied from corner to corner. Cover, full telescope with slanting sides. Extension bottom.

**Appearance of Box on Opening:** Good, but for \$1.00 grade of candy, might have been better.

**Chocolate Coating:** Milk and dark.

**Dark Chocolate:**

**Color:** Good.  
**Gloss:** Good.  
**Taste:** Good.  
**Strokes:** Good.  
**Dipping:** Good.

**Centers:**

**Vanilla Nut Caramel:** Good.  
**Chocolate Nut Parfait:** Good.  
**Belmont Maple Nut Cream:** Cream good, flavor a little too mild.  
**Vanilla Buttercream:** Good.  
**Cordial Cherry:** Cordial good. Flavor is needed in this piece.  
**Raisin Cluster:** Good.  
**Vanilla Cocoanut:** Texture good. Cocoanut did not have a good taste.

**Milk Chocolate Coating:**

**Color:** A little too light.  
**Gloss:** Fair, partly gone.  
**Taste:** Fair.  
**Strokes:** Good.  
**Dipping:** Good.

**Centers:**

**Nut Chip:** Texture good. Nuts had an off taste.  
**Vanilla Nut Caramel:** Good.  
**Nut Cluster (Almonds):** Good.  
**Vanilla Buttercream:** Taste rancid.  
**Belmont Buttercream:** Taste rancid.  
**Vanilla Fudge:** Good.  
**Brazil:** Good.  
**Foiled Vanilla Nougat:** Good.

**Assortment:** Too small.

**Number of Pieces:** 20.

**Workmanship:** Good.

**Remarks:** This box of chocolates at \$1.00 a pound is not up to the standard of dollar boxes on the market today. Suggest a liner be used. Raisin clusters do not belong in dollar boxes. The milk chocolate coating and a number of the centers need checking up. Suggest pieces be made smaller. Also that instead of dipping the buttercreams in milk chocolate, dip them in dark chocolate or leave them out of the assortment entirely. The assortment, by the way, is entirely too small.

CODE 3B 30

### Assorted Chocolates—1 lb—\$1.00

(Made in San Francisco, Cal.)

(Purchased in a drug store, San Francisco, Cal.)

**Appearance of Package:** Good. White Cellophane used, with two seals on either ends.

**Box:** Extension type. Printing in gold, border of gold.

**Appearance of Box on Opening:** Fair. Box too high for candy tray used

for top layer. Liner did not fit—was too short.

**Chocolate Coating:** Dark and milk.

**Dark Coating:**

**Color:** Good.  
**Gloss:** Fair, partly gone.  
**Taste:** Good.  
**Strokes:** Fair.  
**Dipping:** Good.

**Centers:**

**Spiced Cream:** Fair.  
**Cocoanut Cream:** Cream dry; cocoanut flavor rancid; piece had fermented.  
**Vanilla Cream and Apricot Jelly:** Good.  
**Scroll Top Nougat:** Nougat had grained.  
**Raspberry Cream:** Good.  
**Orange Cream:** Flavor good; cream dry.  
**Sprinkle Top:** Cherry Cream: Piece had fermented.  
**Vanilla Nougat:** Good.  
**Foiled Mint Paste and Cream:** Good.  
**Walnuts:** Good.  
**Sugared Almond:** Good.  
**Vanilla Cream:** Good.  
**Chocolate Cream:** Good.  
**Date Paste:** Good.  
**Maple Walnut Cream:** Flavor could hardly be tasted. Cream dry.  
**Raspberry Cream and Jelly:** Good.  
**Molasses Plantation:** Good.  
**Fruit Cream:** Good.  
**Butterscotch and Cream:** Good.  
**Vanilla Nougat:** Good.  
**Molasses Chip:** Good.  
**Brazil:** Good.  
**Milk Chocolate:**  
**Color:** Too light.

## THE MANUFACTURING CONFECTIONER

**Gloss:** Hardly any.  
**Taste:** Fair.  
**Strokes:** Good.  
**Dipping:** Good.

### Centers:

**Peppermint Taffy:** Good.  
**Pink Taffy:** No flavor could be tasted.  
**Fruit Cream:** Good.  
**Peppermint Cream:** Good.  
**Pineapple Cream:** Good.

**Assortment:** Good.

**Number of Pieces:** 32.

**Workmanship:** Good.

**Remarks:** Some of the centers in this box fermented. Centers need checking up. Some pieces are too large. The taffy centers coated with milk chocolate are not good pieces for a dollar box. The same can be said of the date paste and the cocoanut cream. The box is made too high and this causes the top layer to present a poor appearance. Suggest a glassine liner be used instead of wax liner both ways and cut to fit the box. Packing also needs checking up. Some pieces were on their sides and others upside down.

### Code 3C 30

#### Assorted Chocolates—1 lb.—\$1.00

(Made in Boston, Mass.)

(Purchased in a retail candy store, Boston, Mass.)

**Appearance of Package:** Fair.

**Box:** White with gold border. Printing in gold and red. Red ribbonize used on both ends. Plain telescope box.

**Appearance of Box on Opening:** Good.

**Chocolate Coating:** Sweet.

**Color:** Good.  
**Gloss:** Fair. Some pieces had started to turn.  
**Taste:** Good.  
**Strokes:** Good.  
**Dipping:** Good.

### Centers:

**Vanilla Caramel:** Partly grained.  
**Almond Nougat:** Good.  
**Foiled Raisin Cocoanut:** Good.  
**Marshmallow Caramel:** Marshmallow good; caramel partly grained.  
**Vanilla Walnut Cream:** Good.  
**Chocolate Fudge:** Flavor good, texture short and gritty.  
**Peppermint Gum and Peppermint Cream:** Cream good; gum entirely too tough.  
**Lemon Cream:** Good.  
**Maple Cream:** Good.  
**Molasses Sponge:** Good.  
**Wintergreen Cream:** Good; color a little too deep.  
**Raspberry Cream:** Good.  
**Coffee Cream:** Good.  
**Marshmallow Fudge:** Marshmallow good; fudge too hard and gritty.  
**Orange Cream:** Good.  
**Molasses Plantation:** Good.  
**Opera Cream:** Good.  
**Walnut Taffy:** Good.  
**Pineapple Cream:** Good.  
**Nougat and Apricot Jelly:** Good.  
**Brazil Cream:** Good.

**Number of Pieces:** 32.

**Assortment:** Fair.

**Workmanship:** Fair.

**Remarks:** Suggest a more attractive and larger box be used. Boxes and

box tops must be considered today more than ever. It is the snappy, attractive looking box that is selling. Some of the centers need looking into. They are not up to standard for dollar chocolates. Suggest the pieces with the green tops be left out. Use brighter foil—your foils are too dark in color. A few more nuts are needed. A cordial or two, a nut brittle and a piece or two of glacé pineapple.

### Code 3D 30

#### Assorted Chocolates—1 lb.—\$1.00

(Made in Boston, Mass.)

(Purchased in a chain drug store, Boston, Mass.)

**Appearance of Package:** Exceptionally pleasing; has a "rich," dignified appearance. White Cellophane used for outside wrapper; two gold seals on end.

**Box:** White moire paper. Extension type with  $\frac{3}{4}$ -in. ribbonize used on one end of box. Printing in gold and red.

**Appearance of Box on Opening:** Good. All pieces in place. Chocolate cups used. Gold top center partition used. Liner of embossed glassine.

**Chocolate Coatings:** Milk and dark.

**Milk Chocolate Coating:**

**Color:** Good.  
**Gloss:** Good.  
**Taste:** A little too sweet.  
**Strokes:** Neatly done.  
**Dipping:** Good.

**Dark Chocolate Coating:**

**Color:** Good.  
**Gloss:** Very good.  
**Taste:** Good.  
**Strokes:** Good.  
**Dipping:** Good.

**Milk Chocolate Centers:**

**Coffee Cream:** Good.  
**Maple Pecan Marshmallow:** Good.  
**Molasses Plantation:** Good.  
**Molasses Sponge:** Good.  
**Vanilla Creams:** Good.  
**Vanilla Caramel:** Good.  
**Belmont Chocolate Fudge:** Good.  
**Raspberry Cream:** Good.  
**Marshmallow Jelly:** Good.  
**Almond and Pistachio Nougat:** Good.

**Vanilla Pecan Cream:** Good.

**Vanilla Marshmallow:** Good.

**Almonds:** Good.

**Dark Chocolate Centers:**

**Cocoanut Creams:** Flavor good. Cream a little dry.  
**Raspberry Cream and Jelly:** Good.  
**Maple Pecan Cream:** Good.  
**Chocolate Parfait Cream:** Good.  
**Orange Cream:** Good.  
**Lemon Cream:** Cream good. Flavor had turned rancid.

**Caramel:** Good.

**Raspberry Cream:** Good.

**Nut Nougat:** Good.

**Brazil:** Good.

**Vanilla Walnut Cream:** Good.

**Vanilla Cream:** Good.

**Number of Pieces:**

**Milk Chocolate:** 17.

**Dark Chocolate:** 15.

**Workmanship:** Very good.

**Assortment:** Very good.

**Remarks:** Suggest the combination of vanilla creams with milk chocolate coating be left out of the assortment entirely as it is a very sweet eating

piece. The fruit flavors go best with milk chocolate coating. The lemon flavor needs checking up as it had turned rancid. This box of chocolates at \$1.00 a pound is one of the best I have examined in a long time.

### Code 3E 30

#### Assorted Chocolates—1 lb.—\$1.00

(Made in Boston and St. Louis.)

(Purchased in a chain drug store, Boston, Mass.)

**Appearance of Package:** Very fine. White Cellophane wrapper used, with gold seals on each end.

**Box:** Padded top, extension type. Printing in gold and black on red background. Tied with  $\frac{1}{2}$ -in. ribbonize.

**Appearance of Box on Opening:** Fair. Chocolate board partition used on top layer.

**Chocolate Coatings:** Milk and dark.

**Milk Chocolate Coating:**

**Color:** Good.  
**Gloss:** Partly gone.  
**Taste:** Good.  
**Strokes:** Good.  
**Dipping:** Fair.

**Dark Chocolate Coating:**

**Color:** Good.  
**Gloss:** Fair.  
**Taste:** Fair.  
**Strokes:** Fair.  
**Dipping:** Good.

**Milk Chocolate Centers:**

**Filberts:** Good.  
**Caramel:** Fair.  
**Pineapple Cream:** Good.  
**Vanilla Cream:** Flavor good. Cream a little gritty.  
**Raisin Cream:** Good.  
**Almond Cluster:** Almonds not roasted enough.  
**Pignolia Taffy:** Pignolias not roasted enough.

**Dark Chocolate Coated Centers:** 4 pieces foiled on top layer.

**Vanilla Caramel:** Good.  
**Fudge Marshmallow:** Fair.  
**Raspberry Cream:** Flavor and cream good, but too much color used.  
**Date:** Good.  
**Coffee Cream:** Good.  
**Vanilla Marshmallow:** Fair.  
**Chewey Taffy:** Fair.  
**Orange Cream:** Good.  
**Raisin Cream:** Good.  
**Vanilla Caramel:** Fair.  
**Pineapple Cream:** Good.  
**Maple Walnut Cream:** Good.  
**Vanilla Nougat Cream:** Fair.  
**Vanilla Cream:** Cream good. Flavor off.

**Marshmallow Caramel:** Good.

**Raspberry Cream:** Good.

**Brazil Cream:** Good.

**Number of Pieces:**

**Milk Chocolate Pieces:** 8.

**Dark Chocolate Pieces:** 32.

**Assortment:** Good.

**Workmanship:** Fair.

**Remarks:** This box of chocolates needs a slight revamping, and some of the centers might be improved. It is not quite up to the \$1.00 a pound standard in quality. Suggest the foiled pieces be left out as they cheapen the box. Same applies to the red cups. The nougat piece should have some nuts in it. The date piece does not belong in a dol-



## THE CANDY CLINIC

lar box. Its outer appearance is excellent in most respects.

**Code 3F 30**

### **Assorted Chocolates—1 lb.—\$1.00**

(Made in Brooklyn, N. Y.)

(Purchased in a retail candy store, Brooklyn, N. Y.)

**Appearance of Package:** Fair. White Cellophane wrapper used.

**Box:** Extension type with padded top. Printed in gold, blue and light green. Name in blue.

**Appearance of Box on Opening:** Good.

**Chocolate Coating:** Dark.

**Color:** Good.

**Gloss:** Good.

**Taste:** Good.

**Strokes:** Good.

**Dipping:** Good.

#### **Centers:**

**Vanilla Nougat:** Flavor good. Nougat too short.

**Peanut Cluster:** Good.

**Almond Cluster:** Good.

**Pignolia Cluster:** Good.

**Peppermint Cream:** Flavor good. Cream too short and course.

**Vanilla Caramel:** Good.

**Raspberry Cream:** Cream good. Flavor not strong enough. Some fruit is needed in this cream.

**Hard Candy Molasses:** Good.

**Glacé Cherry:** Good.

**Pecan Top Maple Cream:** Good.

**Almond:** Good.

**Brazil:** Good.

**Fig and Date Paste:** Good.

**Coffee Cream:** Good.

**Nut Cream:** Good.

**Cordial Cherry:** Good.

**Assortment:** Fair.

**Number of Pieces:** 41.

**Workmanship:** Good.

**Remarks:** The box is not the right kind for dollar chocolates. A different top would help its appearance considerably. Suggest a liner be used. Peppermint creams did not eat well; nougat was not right—too short. The assortment needs some chewy pieces, also more hard centers. Peanut clusters do not belong in a dollar line of chocolates. Raspberry creams need more flavor and some fruit.

**Code 3G 30**

### **Assorted Chocolates—1 lb.—\$1.00**

(Purchased in a retail drug store, Boston, Mass.)

**Appearance of Package:** Very effective and attractive.

**Box:** Red with embossed gold printing on black base. Silk cord tied corner to corner. White Cellophane wrapper used. Padded top, extension type box.

**Appearance of Box on Opening:** Very poor.

**Chocolate Coating:** Dark, sweet.

**Color:** Good.

**Gloss:** Completely gone and most all pieces had turned gray or dull.

**Taste:** Good.

**Dipping:** Fair, plain strokes and some carelessly done.

#### **Centers:**

**Raspberry Jelly:** Good.

**Marshmallow Caramel:** Good.

**Brazil:** Had an off taste.

**Cordial Cherry:** Good.

**Chocolate Fudge:** Fair.

**Marshmallow Apricot Jelly:** Good.

**Apricot Walnut Jelly:** Jelly good. Walnut rancid.

A piece, could not tell what it was—looked like a pineapple cream. It was hard, rancid and had fermented.

**Roman Nougat:** Fair.

**Vanilla Marshmallow:** Tough.

**Filbert Cluster:** Good.

**Vanilla Caramel:**

**Peanut Butter Sponge:** Good.

**Dark Cream:** Could not taste any flavor.

**Peppermint Cream:** Fair.

**Butterscotch:** Grained. Rancid taste.

**Peanut Cluster:** Good.

**Marshmallow Caramel:** Good.

**Raisin Cluster:** Good.

**Almond:** Good.

**Maple Cream:** Good.

**Pineapple Cream:** Good.

**Maple Pecan Cream:** Cream good. Nut rancid.

**Assortment:** Good.





## THE MANUFACTURING CONFECTIONER

### Workmanship: Crude.

**Remarks:** This box of chocolates is not up to standard. Far superior goods are being sold at 70 or 80c per pound. The machine dipping was some of the crudest I have ever seen. This box of chocolates needs much improving.

### Code 3H 30

#### Assorted Chocolates—1 lb.—\$1.00

(Made in New York City.)

(Purchased in a retail candy store, Brooklyn, N. Y.)

**Appearance of Package:** Good. Outside wrapper of white Cellophane. Gold cord with tassels tied around each end.

**Box:** Extension type, padded top. Pink colored paper, center of gold and blue. Name in blue on gold base.

**Appearance of Box on Opening:** Good. Two foiled pieces on top layer.

**Chocolate Coatings:** Milk and dark.

**Dark Coating:**

Color: Good.

Gloss: Good.

Taste: Good.

Strokes: Good.

Dipping: Good.

**Centers:**

Vanilla Caramel: Good.

Maple Walnut Cream: Good.

Molasses Plantation: Texture good.

Molasses flavor could be a little stronger.

Pistachio Nut Nougat: Good.

Vanilla Nut Nougat: Good.

Vanilla Cocoanut Cream: Good.

Molasses Sponge: Good.

Caramallow: Good.

Chocolate Parfait Cream: Good.

Raspberry Jelly: Good.

Molasses Cocoanut: Good.

Raspberry Cream: Good.

Peppermint Cream: Good.

Peppermint Thin Mint: Good.

Solid Chocolate Tablet: Good.

**Milk Chocolate Coating:**

Color: Good.

Gloss: Partly gone.

Taste: Good.

Strokes: Fair.

Dipping: Fair.

**Centers:**

Molasses Sponge: Good.

Raisin Cluster: Good. See remarks.

Almond on top of Raspberry Cream: Good.

**Number of Pieces:** 38.

**Assortment:** Good.

**Workmanship:** Good.

**Remarks:** This is a good box of dollar chocolates and well made. A few pieces are a trifle large for satisfactory packing and the box is a little high. Suggest it be cut down some in height. Also suggest that a liner be used as this will help to put a finish to your box at very small cost. The top layer makes a very good appearance but the bottom layer is a bit disappointing. If the pieces are made to run about 42 to the pound this lower layer can be packed tightly and no spaces will show. The partition used would look far better if topped with white or silver. Suggest the pieces made up of raspberry cream and topped with almonds be changed to all almond triplets or clusters.

### Code 3I 30

#### Assorted Chocolates—1 lb.—\$1.00

(Made in New York City.)

(Purchased in a drug store, Jamaica, L. I.)

**Appearance of Package:** Very good. White Cellophane used for outside wrapper.

**Box:** Extension type box with padded top. Silver colored paper used. Border of pale blue, center of red and name embossed in silver.

**Appearance of Box on Opening:** Fair. The packing was entirely too loose and goods had settled to one end of the box, leaving a one inch space at the other end. Two foiled pieces used on top layer, one in bottom layer.

**Chocolate Coating:** Good.

Color: Good.

Gloss: Fair.

Taste: Good.

Strokes: Fair; some carelessly done.

Dipping: Good.

**Centers:**

Vanilla Nougat: A trifle too short.

Peanut Cluster: Good.

Vanilla Pecan Cream: Good.

Vanilla Cocoanut Cream: Good.

Chocolate Cream: Good.

Maple Marshmallow: Good, but is entirely too large.

Filbert Cluster: Good.

Orange Cream: Good.

Molasses Sponge: Good.

Pistachio and Chocolate Cream: Texture good. Pistachio flavor too strong.

Lemon Cream: Cream good. Flavor a trifle rancid.

Date: Good.

Raspberry Jelly: Very good.

Molasses Plantation: Fair. Texture good. Flavor not strong enough.

Vanilla Caramel: Good.

Vanilla Marshmallow: Good.

Vanilla Cream: Flavor good. Cream dry and short.

Coffee Cream: Good.

Some kind of nut paste: Nuts tasted rancid.

Ginger Cream: Flavor good. Cream dry and short.

Raspberry Cream: Good.

Almond Flavored Cream with Cocoanut: Fair.

**Assortment:** Fair. (See remarks.)

**Number of Pieces:** 38.

**Workmanship:** Good.

**Remarks:** The appearance of this box on opening can be improved. Suggest a tray be used for top layer. The assortment can stand a few hard centers such as nut brittles, a taffy or two, a brazil nut and a few chocolate almonds. The assortment is not up to the dollar pound standard. Peanut clusters and dates do not belong in dollar chocolates.

### Code 3J 30

#### Assorted Chocolates—1 lb.—\$1.00

(Made in Chicago, Ill.)

(Purchased in a drug store, Chicago, Ill.)

**Appearance of Package:** Good. White Cellophane wrapped. Lavender tinsel ribbons used.

**Box:** Extension type with padded top. Covered with light lavender paper,

the name and border in a deeper tone of the same color.

**Appearance of Box on Opening:** Good. Tray used for center. Four foil-wrapped pieces on top layer. Very well packed. This is a novel way to pack chocolates.

**Chocolate Coating:** Milk and Milk Belmont.

Color: Good.

Gloss: Fair.

Taste: Good.

Dipping: Good.

**Centers:**

Cordial Raisin: Good.

Walnut: Good.

Pecan: Good.

Filbert: Good.

Almond: Good.

Brazil: Good.

Caramel Almond: Good.

Vanilla Cream: Good.

Vanilla Nougat: Good.

Caramel: Good.

Maple Cream: Good.

Sponge Chip: Good.

Orange Cream: Good.

Glacé Pineapple: Good.

**Number of Pieces:** Good.

**Assortment:** Fair.

**Workmanship:** Good.

**Remarks:** The chocolate coating used on these goods is of good quality, as are the raw materials. The assortment, however, is not up to standard. Too many vanilla creams, maple creams and nougats are used. Centers of raspberry cream, lemon cream, fruit creams and a few chews would help the assortment. Also suggest some dark chocolate coated pieces be used, as it is not stated on the box that these confections are coated with milk chocolate. A liner will help, too.

### Code 3K 30

#### Assorted Chocolates—1 lb.—\$1.00

(Made in Milwaukee, Wis.)

(Purchased in a drug store, Chicago, Ill.)

**Appearance of Package:** Good. White Cellophane used for outside wrapper; ¼-inch green ribbon.

**Box:** Light buff; name printed in black and red. Extension type with padded top.

**Appearance of Package on Opening:** Good. This box contained homemade candies and chocolates.

**Chocolate Coatings:** Dark and milk.

**Dark Coating:**

Color: Too dark.

Gloss: Good.

Taste: Good.

Strokes: Fair.

Dipping: Fair.

**Milk Chocolate Centers:**

Molasses Peanut Butter: Good.

Caramel Marshmallows: Good.

Maple Pecan Cream: Good.

Peppermint Cream: Good.

**Dark Chocolate Centers:**

Vanilla Cream: Good.

Peanut Taffy: Good.

Molasses Chips: Good.

Chocolate Panned Sugar Mint: Good.

**Home Made Pieces:**

Caramel and Nougat: Nougat fair.

Caramel too tough.

**Crystallized Peppermint Sticks:** Good.

## THE CANDY CLINIC

**Butterscotch:** Too hard.  
**Green Chewy:** No flavor could be tasted. Texture good.  
**Cocoanut and Caramel:** Good.  
**Vanilla Caramel Whirl:** Good.  
**Chocolate Caramel and Nougat:** Good.  
**Oil Coating: Vanilla Cream:** Good.  
**Green Magnolias:** Good.

**Assortment:** Good.  
**Workmanship:** Good.  
**Milk Coated Pieces:** 8.  
**Dark Cooked Pieces:** 14.  
**Homemade Pieces:** 15.

**Remarks:** A few too many vanilla creams were used. One peppermint stick was very hard. If this piece were made of powdered sugar and syrup instead of cream, it would keep better and would not have to be crystallized. Butterscotch had a good flavor but was too hard. This is a good eating piece if properly cooked.

Code 3M 30

**Assorted Chocolates—1 lb.—\$1.00**  
 (Made in Atlanta, Ga.)

(Purchased in a drug store in Norfolk, Va.; mailed to headquarters.)

**Appearance of Package:** Good. White Cellophane wrapper used.

**Box:** Extension type. Top unpadded. Cream colored with printing in gold, red and blue. Attractive.

**Appearance of Box on Opening:** Very good. Novel liner used. Pieces all in place and in good condition.

**Chocolate Coating:** Dark.

**Color:** Good.

**Gloss:** Good.

**Taste:** Good.

**Strokes:** Plain. Neatly done.

**Dipping:** Good.

**Centers:**

**Vanilla Cream:** Good.

**Vanilla Nut Nougat:** Good.

**Vanilla Cocoanut Paste:** Good.

**Raspberry Cream:** Good.

**Vanilla Buttercream:** Good.

**Chocolate Nut Caramel:** Good.

**Vanilla Marshmallow:** Fair.

**Chocolate Parfait:** Good.

**Vanilla Caramel:** Good.  
**Molasses Peanut Butter Sponge:** Good.

**Belmont Marshmallow:** Fair.

**Chocolate Caramel:** Good.

**Peanut Cluster:** See Remarks.

**Cream Raisin:** Good.

**Peanut Taffy:** Good.

**Green Peppermint Cream:** Cream and flavor good. Color entirely too deep.

**Assortment:** Fair, but too small.

**Number of Pieces:** 44. Three pieces on the top layer and one on the bottom were foiled.

**Workmanship:** Good.

**Remarks:** This box of chocolates made a fine appearance and was well packed. The assortment was a trifle small. Suggest more hard and chewy centers be used and less cream centers. Peanut clusters do not belong in dollar chocolates. The marshmallow was not up to standard. Suggest the individual pieces be packed irregularly rather than in rows.

Code 3L 30

**Assorted Chocolates—1 lb.—\$1.00**  
 (Made in Atlanta, Ga.)

(Purchased in the manufacturer's retail store in Norfolk, Va.; mailed to headquarters.)

**Appearance of Package:** Good. White Cellophane used.

**Box:** Extension type of box with padded top. Pale orange colored top, printing in gold. White and red border.

**Appearance of Box on Opening:** Very poor. Pieces turned over and three broken. Liquid had run over part of top layer. Packing very poorly done.

**Chocolate Coating:** Dark.

**Color:** Good.

**Gloss:** Hardly any.

**Taste:** Good.

**Strokes:** Plain. Some carelessly done.

**Dipping:** Fair.

**Centers:**

**Marshmallow:** Good.

**Orange Cream:** Cream good. Flavor not strong enough.

**Vanilla Cream:** Good.

**Molasses Peanut Butter Sponge:** Good.

**Apricot Jelly and Marshmallow:** Marshmallow good. Jelly grained.

**Solid Chocolate Piece:** Good.

**Cordial Cherry:** Was broken and dry.

**Apricot Jelly:** Good.

**Peanut Cluster:** See remarks.

**Chocolate Spiced Cream:** Fair. See remarks.

**Lemon Cream and Caramel:** Good. Filbert Clusters: Filbert not roasted sufficiently.

**Lemon Cream:** Cream of good flavor but not strong enough.

**Ting-a-ling:** Good.

**Belmont Coated Vanilla Cream:** Good.

**Maple Walnut Cream:** Good.

**Vanilla Nut Nougat:** Nougat too short.

**Peppermint Cream:** Good.

**Vanilla Caramel:** Flavor good. Texture too tough.

**Cream Brazil:** Good.

**Vanilla Almond Caramel:** Good.

**Assortment:** Fair.

**Number of Pieces:** 39. Two pieces in top layer were foiled.

**Workmanship:** Fair.

**Remarks:** This box of chocolates is not quite up to the general run of dollar chocolates on the market today. The box could be made more attractive by adding more color. We suggest that a liner and a lower box be used. The present package is too high and this, together with the loose packing, was responsible for the pieces being turned over and becoming broken in mailing. A pad and some sort of divider is also needed on top layer. Peanut clusters do not belong in dollar-a-pound chocolates. More chewy and hard centers are needed to round out the assortment. A number of centers require looking into. They are not right.

## Answers to this Month's Questions

1. The packers emit moisture by respiration. If the air space in the room is relatively small the air, especially if it is already of high humidity, soon becomes saturated. When the packers leave the room, the temperature falls sufficiently to cause deposition of moisture on the goods. This is why it is important not to overcrowd the departments.

2. Chocolate of certain types will absorb moisture from an atmosphere of 77 per cent relative humidity. Therefore, if possible, chocolate should not be exposed to relative humidity greater than 75 per cent.

3. (a) Filling fire buckets with dry sand instead of water; (b) avoiding the washing of floors on days of high humidity; (c) reduc-

ing to a minimum the number of persons per cubic area; (d) drying out the boxes and packing materials before packing.

4. Because each variety of bean requires individual roasting to bring out its best qualities.

5. Raffinose. It possesses in a striking degree the ability to retard the crystallization of sucrose (cane or beet sugars).

6. Dextrose, which is present in all hard candy either as a component of the added corn syrup or invert sugar, or as a break-down product resulting from the doctoring of cane sugar, has a decided tendency to absorb moisture from the atmosphere to form the hydrate crystal. A thin film of moisture, indistinguishable to the touch, is

sooner or later deposited upon the surface of the candy and is taken up by the dextrose constituent in forming its stable phase. It is believed that this superficial crystal formation induces a sympathetic action in the interior of the candy, with the result that the sucrose (cane sugar) crystallizes out also.

7. The dextrin present in corn syrup.


8. By the introduction of certain weak acidic salts, such as acetates, phosphates and citrates.

9. Over 110 pounds per person per annum.

10. By preserving the original proportions of alpha and beta lactose present in whole milk. The result is a sugar of greater sweetness. Tests indicate its usefulness as a drier in hard candy, etc.

# Better \$1.00 Boxes Forge to Front

By ERIC LEHMAN

 HE dollar boxes of chocolates on the market today are far more attractive and better finished packages than we have had in the past. The boxes are well made up and, with a few exceptions, are worth a dollar a pound. Most of them have color and spread and, of course, some are cheap "jobs" and look it.

The extension type box seems to predominate; the "spread-and-color" boxes come next; some few are overdone both in color and spread. The retail candy store, the drug store and most other places where dollar boxes are sold seem to want spread, color and good-looking pieces. The candy itself is apt not to be considered the main idea. So far as quality is concerned, some of these packages are far from being worth a dollar a pound, but the box is a work of art in color and spread.

If a large spread is what is wanted, this can be obtained with a little thought and planning. But in trying to achieve this effect, the packing of many of the boxes which the Clinic examined fell far short of presenting the appearance of a finished box of candy. To pack a large spread, the partitions figure in a large way. An infinite number of partition-arrangements can be devised to use up space and still look good. You will just have to experiment a little bit until you strike the happy "floor plan."

We frequently find cups that are too large for the chocolates, and we are quite aware that this has been done to fill up the layer. Using oversize cups to fill up space may look good when you pack the boxes, but after your box has been shipped and handled a number of times before it arrives in the consumer's hands, it looks like anything but an attractive box. If you have space to fill, design a wasteful divider; see that it fits the box and pack the boxes tight. This can be done simply and economically even if you do use an oversize box. As a matter

of fact, some of the one-pound boxes are large enough to hold two pounds.

Colored Cellophane is being used with increasing frequency. With one or two exceptions, the use of colored Cellophane did not help these boxes, whereas white Cellophane would have gone very well with them.

Some boxes which the Clinic examined had no liners, which is a mistake, since even the cheaper boxes use liners to advantage. Liners help to preserve gloss and general appearance, by preventing them from scratching and keeping the pieces in place. Liners are cheap and well worth the trouble required to put them in your boxes.

Occasionally we found wattoline mats which were too small for the boxes. An undersize mat will move about and scratch the tops of the chocolates. In some boxes the liners were cut too small, and as a result did not look well. Liners should be cut to fit the ends of the box snugly.

We still find boxes with wonderful top layers, but in which the bottom layers look as though the goods had been dumped in instead of packed. Bottom layers must look good, too.

Although centers are things which we are all expected to know how to make, some of the goods which we examined looked as though they had been made by almost anybody but a candy maker. Even where very fine raw materials were used, they were sometimes spoiled in the making.

Raisin clusters, peanut clusters and fig paste centers have become so tied up with cheap candy that they no longer seem to belong in dollar a pound chocolates. Lemon and orange flavors are excellent center flavors, provided they are taken care of. But don't let them get old prematurely. Keep them in a cool place and they will hold up a long time, but if you insist upon keeping them in a hot cooking room

you may be quite sure of their turning rancid. A number of pieces containing fruit flavors *were* rancid, and a piece or two of this character is not likely to do your box any good.

Some of the nuts contained in Brazil, walnut and pecan creams had also turned rancid. For cream work one must use fresh, clean nuts if he wants them to stay sweet and in palatable condition.

A little touch of color in creams is a good thing, but some of the cream centers looked as though the whole bottle of color had been added to the one batch. Pistachio, rose and also violet are poor flavors for cream work. In French chocolates, these flavors may pass muster, but in the regular line of chocolates they do not belong.

Do you ever send to one of your jobbers and ask him to return one of his oldest boxes to you or buy a box yourself of your own goods? Try it some time; you may get a surprise or two. We all go along thinking that our packages are beyond reproach, and if the customers do not return them, then we feel sure they are all right. But stop to consider. How many people will go to the trouble to return a box of candy? Very few. So check up your boxes; cut open a box now and then; see how heavy the coating is running; whether the cream centers are soft, or the caramels have grained; whether a flavor has gone rancid; whether they were packed right and dated properly.

We buy a box of the other fellow's goods, cut it open and say, "Well, we certainly have that box beaten," but maybe he is at that moment doing the same with one of ours. It's not what we try to do, but only results that count!

\* \* \*

Easter goods finished? How about summer goods? Are you going to try for more candy business this summer? Then get out a good summer box, pack it right and get away to an early start. Now is the time to think about your summer line. Much new business can be had with a new summer box or with a few good summer numbers in bulk boxes. Look back in THE MANUFACTURING CONFECTIONER to our summer numbers and you will get an idea or two for your summer candies and summer assortments.



## Speaking of Candy Schools

(Continued from page 55)

of the hand and arm just as I suppose they must teach in drawing. It is here that we instruct in scroll work and borders. We teach them a number of designs in fancy borders to lend variety to their decorations. Next comes lessons in lettering. The complete alphabet is gone over thoroughly and perfection in each letter is attained before we go on. Longhand is preferable to printing because of speed.

### Good Lettering Is Important

Lettering is very important here in Philadelphia on account of the long standing custom of writing names on individual eggs. At one time, I understand, the confectioners hereabouts were considering the advisability of discontinuing this practice of writing names in icing on Easter eggs. While this work entails much extra special detail work in order writing, packing, etc., I believe it is one of the reasons for the popularity of the Easter season hereabouts. It has the same effect as engraving on jewelry—it is a distinctive present to that one person and makes quite a big impression on the kiddies.

To get back to our instructions, continued Mr. Orth, the next course is in animals, leaves, flowers, etc., We take each one at a time, and my associate, Mr. Paul Kuhnle, and I give every student individual attention and instruction. We teach them to make all figures and designs large and after they have mastered the art of making animals we impress upon them the importance of reducing the size.

We are trying to modernize the designs in making them small, neat and exact. The old idea was to get

as much on an egg as possible. Our idea is to instill in the mind of our students that an egg will have a better selling value if it has a neat, snappy appearance with small figures and accurate lines.

Our final instructions will be on decorating with chocolate. This during the past few years had become an important part in an egg decorator's work. Then, too, the gaining popularity of hollow chocolate eggs in this market. Their popularity appears to be increasing about 20 per cent every year, and in a few years hollow chocolate eggs will be equally in demand as cream center ones. Nearly all of the decorating on the hollow eggs is done with chocolate coating and we therefore have to teach our students the care and temperature of coatings and the importance of working fast and the elimination of certain figures on account of the advisability of swift drying.

At the end of the term in May the association will present a diploma to those scholars who are deemed first class in workmanship, speed and accuracy, and they will be qualified to receive the wages that go with that type of work.

Others whose ability does not quite measure up to our standard will be required to return next year for further instructions, but we will permit them to hire out at smaller wages, as their work will be of a type good enough for the Easter eggs up to 50 cents size.

I know that this school is going to do much to maintain a high standard in Easter egg decoration and therefore help in keeping up the high peak in Easter sales which have always been enjoyed in the vicinity of Philadelphia.

Mr. Charles Orth, the instructor, came to this country from Strassburg, Alsace-Lorraine, where he received his apprenticeship and instructions in the shop of Laechler & Company. He worked at this trade in Atlantic City and Philadelphia, and has for the past seventeen years been associated with Chr. Sautter & Sons Company.

Mr. Paul Kuhnle, the assistant instructor, has not had the experience as has the head instructor, but his work and ability to impart his knowledge has been a big asset to the school. Serving as a member of a machine gun battalion in a

Bavarian regiment with the German forces, he emerged from the war with a leg wound and a coveted Iron Cross.

At the end of hostilities he became apprenticed to a baker and confectioner in Nurnberg for three years, for which privilege he paid 100 marks per year and received no pay. Coming to America after working four years in Nurnberg, where they make the famous German Lebkuchen, he obtained a position at C. Sautter & Sons, where he is now employed under Mr. Orth.

The Journeymen Confectioners and Cake Bakers Beneficial Association, which is fostering this school, has been in existence since 1872 and has a paid-up membership of 388. It accepts into its membership only first class workmen in candy making and cake baking. Mr. F. L. Boerger is chairman of the Association's School Committee.

### All Aboard for Chicago

FOR the benefit of our members and friends in New York, New Jersey, Pennsylvania, and the New England States we have made arrangements with the New York Central Railroad for a special train to the annual convention and exposition, which will be held in the Stevens Hotel, Chicago, on June 3, 4, 5 and 6.

The special train will leave the Grand Central Terminal in New York at 1:10 P. M. either on Saturday, May 31, or Sunday, June 1, arriving in Chicago at 9:45 A. M.

Stops will be made en route at the larger cities in New York State which will enable members and friends located in or near those cities to take advantage of this unusual convention feature, which will be known as the N. C. A. Annual Convention Special Train. No other persons will be permitted to take this train.

This will be the first time in the history of the industry where a special train has been run to one of our annual conventions. Further details may be obtained from Mr. William R. Moore, manager, Eastern Confectioners' Traffic Bureau, 117 Liberty Street, New York City, or from Mr. Olin M. Jacobs, secretary, New England Manufacturing Confectioners' Association, 40 Court Street, Boston, Mass.—National Confectioners' Association Bulletin.



These gentlemen are teaching ambitious students the art of decorating Easter eggs.

